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MECHANIX ILLUSTRATED

OCTOBER 1961 Volume 57, Number 10

WILLIAM L. PARKER editor

Lawrence Sanders . . . . . Feature Editor
Harvey Gardner. . . . . Associate Editor
Dick Howe . . . . . Associate Editor
Helen S. Wolff . . . . . Production Editor
Robert Brightman Home and Shop Editor
John J. Smith . . . . . Associate Editor
Adam Nott . . . . . Associate Editor
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Joseph D. Doyle . . . . . Art Editor
Vincent Trotta . . . . . Art Associate
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COMING NEXT MONTH!

WILL THE plane you see here be tomorrow's "Flying Flivver"? This amazing craft has a flexible nylon wing, lands at about 40 mph and is expected to cut the cost of lightplanes in half! You can read all about this remarkable plane in the November MI, an issue that will also bring you Uncle Tom McCahill's test of the '62 Chevy, an exclusive story about a new way to market your toy and game ideas and an exciting feature on multiplex stereo —good news for radio listeners. All in next month's MI—on sale Oct. 24th.

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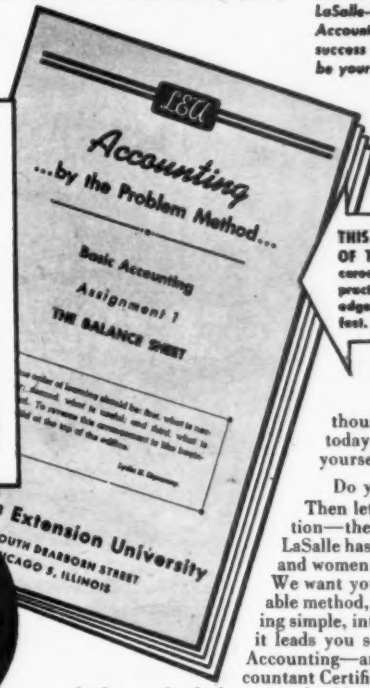

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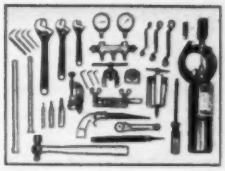

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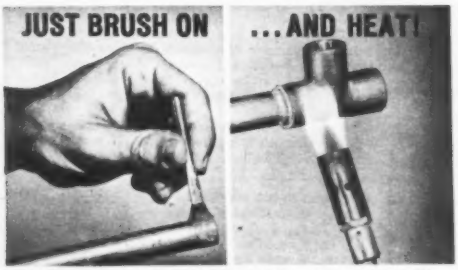

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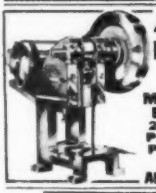

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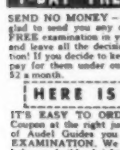

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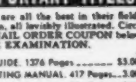

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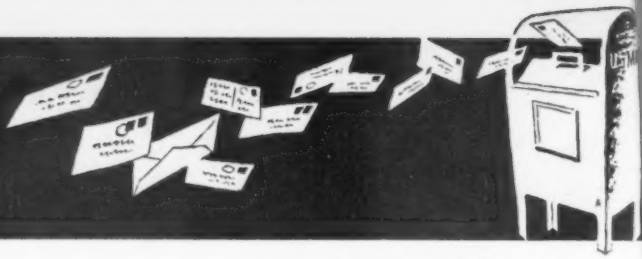
Dear Editor



Address mail to: Letters Editor, MECHANIX ILLUSTRATED, 67 West 44th Street, New York 36, N. Y.

• *Small Fry Fishing*

I want to congratulate you on the article by W. Scott Duncan in the June MI (Teaching Your Son To Fish). I have a son 12 years old who has been after me to take him fishing. I am no fisherman, but a golfer, so didn't know what to do until I read Duncan's story. I read it carefully, took Freddy to a store and bought him tackle as the article advised. I then took him to a pond that I had heard was full of sunfish. My boy caught a fine mess of fish and we cooked them on the bank of the pond. Now, darn it, I'm fishing too—every chance I get! That was a fine article.

F. J. Johnson
Lancaster, N. H.

What are you trying to do to the kids who want to fish now and then—make little snobs out of them? Any kid with $35 or $40 worth of tackle is well on his way to being the most detested kid in his neighborhood. One-tenth of that amount will buy all the equipment any youngster needs. And I don't mean "bent pins" either. Why not write an article from the kid's viewpoint, not that of a professional outdoorsman?

Richard E. Scneder
St. Petersburg, Fla.

• *Please, No Mildew!*

Upon storage of some magazines—including some MIs—in my basement they begin to acquire an odor of mildew and mustiness. Is there any procedure you can suggest that will remove this unpleasant odor?

Frank Giannttasio
East Paterson, N. J.

Books, magazines and newspapers should never be stored in a basement unless it is thoroughly free from dampness. Once they have become musty the only way to deodorize them is to dry them out, preferably in the sunshine. Fan them open so that they will stand on end with their pages slightly separated. After drying, wrinkled pages of uncoated stock (such as MI's) should then be lightly sprinkled with water. Insert a page-size blotter about every ten pages and press the magazines under weights. If the pages are coated (glossy), blotters must be inserted between each page before pressing. Afterwards, to sweeten the pages, sprinkle a little talcum powder between each page.

• *Heavier On The Liters*

In regard to your description of the E-type Jag sports car (New Jaguar Sports Car, May MI) you listed the displacement as 3.8 liters or 190 cu. in. A liter is about 61 cu. in. Better figure it again.

Don Wilcox
Boron, California

Right you are, Don, our slip was showing. Will you buy 231.8 cu. in.?

• *Stapled Stewart*

Thanks for that story on the many good ways a stapler can be used outdoors (Using a Stapler Outdoors, August MI). I would like to suggest one more use for a stapling gun that I bet never occurred to anyone else. I got the idea last spring when I visited our vacation cabin to open it up for the summer. I

[*Continued on page* 17]

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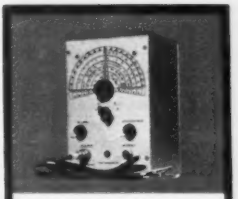

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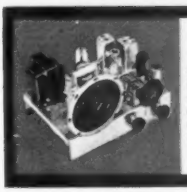

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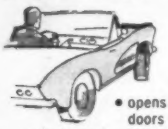

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Dear Editor

[*Continued from page* 14]

took our youngest boy, three-year-old Stewart, along with me to introduce him to the woods. When we arrived I set about cleaning up the yard, chopping wood, etc. A few minutes later when I looked around little Stew had disappeared. I finally found him crunching around in a berry patch near the cabin but decided I had better figure some way to make him stay put. Having no rope to tie around his middle and not wanting to park him in the hot car, I took out my trusty stapler and stapled the seat of his pants to a nearby tree. Then I unboarded the cabin, unstapled Stew and we both enjoyed a soda together, neither of us any the worse for wear.

Richard Sosis
New York, N. Y.

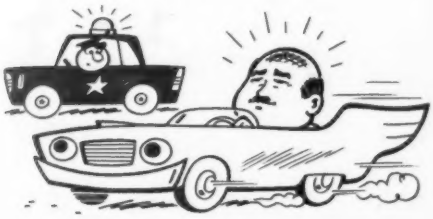
● *Famished Kansan?*

In the July MI Science Shorties column it stated that "One farmer in the U. S. produces enough food for 24 people." Who is he? Please send me his address.

Carl E. Seydell
Wichita, Kan.

Sorry, Carl, you're the 25th to write in and there just isn't any left.

● *Tom "Red" McCahill*



My hat's off to Tom McCahill for his really brilliant article, Let's Have *National* Driving Laws—*Now!* (August MI). Nothing better points up the desperate need for uniform driving laws than the annual toll of highway fatalities in the U. S.

Now, on the lighter side, I have just one question regarding the physical description of Uncle Tom on the mock-up of the National Driver's License pictured with the article. In the space following "Color of hair" he has typed "Red." And all this time I thought he was a "chrome dome." How about that?

William Tenur
Salt Lake City, Utah

[*Continued on page* 19]

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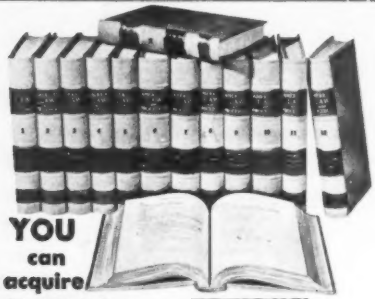

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Dear Editor

[Continued from page 17]

Glad you liked the story, Bill. Regarding your hawk-eyed observation of Uncle Tom's head hue—he's a redhead no matter how you look at it. That halo of fuzz caressing his ears is still as red as fall apples. And the hemisphere above it is as burnished bronze—thanks to those many car-testing runs Tom makes under the Daytona sun.

• *Six-Ton Boat*

In the July issue of MI you referred to the Turtle (Mobile Home On A Raft) as the world's largest outboard craft. In the same issue (page 70) was an article entitled Six-Ton Rubber Boat, and this boat was said to be powered by eight 80-hp outboards. The Turtle is six-feet shorter and 11½ feet narrower across the beam. Wouldn't that make the Six-Ton Rubber Boat the largest outboard-powered craft?

Clifford Tussing
Findlay, Ohio

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By Joseph H. Kraus

INVENTION CLINIC

In this column each month Mr. Kraus will answer as many letters as space permits on those subjects he feels to be of widest general interest. Time does not allow him to reply to any letters except those printed here. Address your questions to the Invention Clinic, *Mechanix Illustrated*, 67 West 44 St., New York 36, N. Y.

Self-Heating Can

Americo Del Raso of Lakewood, Ohio, has designed a self-heating can. What are the suggested possible uses for something like this which might cost 15 cents?

This depends somewhat on shelf life, potential danger, safety from accidental firing and safety from content explosion. Assuming that all these things are favorable, it could develop into a rather fine marketable item. Your design could be used to supply hot food for submarine crews, explorers in frigid countries, sportsmen and for hundreds of other useful purposes.

Binocular Telescope

T. F. Cheaney of Fort Lauderdale, Fla., sends diagrams and a description of a binocular telescope which permits the user to look through a telescope, through the finder telescope or along the sights without moving his head. He feels that this idea might interest amateur astronomers and others. Would it?

Most finder and large telescopes are mounted permanently together. Once the finder is adjusted, it remains locked in position. Doubtless some amateur telescop builders would like to know about your tech nique, and particularly would like to se some star pictures taken with your mirro arrangement to see how much, if any, distor tion you might get. You might give som thought to using your design for military an other observation purposes. There may b several manufacturers who would like t examine your idea and might even offer yo a royalty proposition if you can get some protection. I recommend that you pursue these angles further.

INVENTOR'S TIP OF THE MONTH

Wealth and fame will come to the inventor who can develop a large-scale use for coal or one of its by-products, especially if the use cannot be duplicated by oil or natural gas. New uses for coal would help rejuvenate an important industry now suffering from competition with other cheaper fuels.

Honest Opinions Needed

William Pettit of Wellsville, N. Y., says that he has had hundreds of ideas in mind which later appeared on the market. Is there any place where he can get an honest opinion of his inventive thoughts?

Such advice has been given by me for more than 40 years. But frequently I cannot fathom what you or others may have in mind. You must detail your ideas and outline their designs. What materials you expect to use are of little consequence. For example, things made from wood, metal or glass can also be made of plastic. This shows no inventiveness whatever. See the next answer, too.

Power From Rivers

Josef Nobi, Loveland, Colo., wants an opinion of a device which would capture the power of rivers and streams without the need of costly dams. It would not be affected by flooding or freezing, and not interfere with water traffic. What is our opinion?

This is the kind of a letter to which I rarely reply. You expect me to guess what you have

[*Continued on page* 23]

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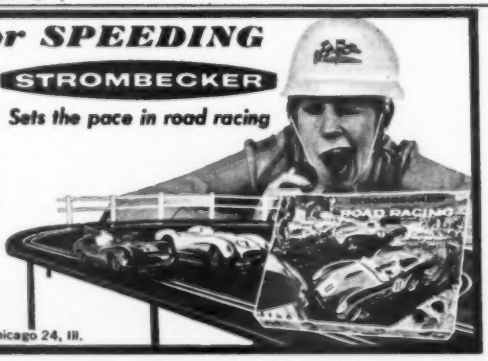

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Invention Clinic

[*Continued from page* 20]

in mind. If you can demonstrate what you claim, you have a very valuable invention. But if you want a candid opinion you must furnish sufficient details so that proper evaluation may be made.

Snow Remover

Emil B. Wells of Rock Hill, N. Y., has built a model of a snow remover which will clean an area two feet wide over a distance of 35 feet in five minutes with "not one flake of snow left on the ground." Is it worth while to go ahead with a patent?

I would need to know how deep was the snow, was it wet or dry, what was the temperature at the time of removal and how much packing occurred previously. If your test was repeated during each snow fall during the past winter, and if each of your trials gave the same results, you have a very valuable invention. I would then recommend that you have a search made right away and if it seems favorable you should apply for a patent. Such an item would find a quick, favorable market with the home owner as well as with highway departments in many cities and the manufacturers of snow removing equipment.

Vacuum Cleaner Attachment

Mrs. June M. Smith of Ozone Park, N. Y., writes: "Would it be safe to show drawings of a vacuum cleaner attachment to various companies after applying for a search? Are there people who will help finance worthwhile ideas?"

In general the answer to your first question is No. You have no claim to anything, so you are not in a position to negotiate for the sale of property. If you had a patent, you could negotiate because you have protected your rights. Yes, some people will help finance inventions. They are difficult to locate. Often they are friends who will invest in something which offers an opportunity to make some money. But it takes more than a good idea to be assured of success.

Rotary Snow Blower

Dale E. Malott of Hellam, Pa., sends draw-

[*Continued on next page*]

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ings of a snow blower. How would he go abo interesting some company to patent and ma ket it?

This has been on the market for years. is not much good. A friend who has o could use it only twice in three years. works fine on cold, crisp snow but fails wh snow packs.

Car Door Protector

Jack Lloyd of Hollywood, Calif., has d signed a device to prevent damage from th opening of doors of other cars which may b parked too closely. Has he something her and how should he proceed?

Owners of new cars may take to this idea It is simple, inexpensive and easy to produce However, it also may be difficult to protec fully because many different techniques fo attachment are possible. A patent search i recommended. If the report is promising you should study possible avenues for introducing the item before spending too much money on it.

Patent Office

W.V.C. Chisholm of Beverly Hills, Calif., asks: "To what department should I write for an application for a patent?"

Write to the U. S. Patent Office, Washington 25, D. C., for copies of free booklets which contain a lot of valuable information. You also might contact a local patent attorney. As patent attorneys do not advertise, you can locate them easily through the classified section of your telephone directory.

Kite Messenger

Louie McCaw of Amarillo, Texas, inquires about a kite cargo release messenger with which he played as a youngster. Can this be patented if it is made from plastic? If not patentable, can it be marketed?

The material from which this type of article is made is not a claim for a patent. However, you might be able to improve on the old design and make it more effective. Then you might have a basis for patent protection. As the original design has been known and used for more than 50 years, anyone can make it. Your only hope for success is to produce and distribute the item itself. I don't recommend this procedure. Unless you have had plenty of experience in the toy field you may get burned badly. •

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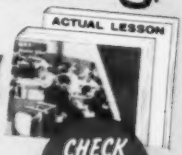

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PATENTS GRANTED

A VENTILATION screen that is inserted in the tailgate opening of station wagons won Patent 2,983,547 for James W. Moore of Speedway, Ind. The screen is either hinged to the car's body or inserted in such a way that it slides into the opening easily. An outside latch prevents children in the back seats from accidentally opening it.

A "jet-propelled" play boat that children can ride in received Patent 2,983,244 for inventor Richard S. Young of Billings, Mont. The boat is propelled through the water by foot-operated bellows which send jets of air swirling out of dual exhausts.

Patent 2,984,735 was awarded Sidney A. Batterson of Newport News, Va., for a system of runway lights illuminating the center line of an airstrip. The inventor came up with the idea from recent flight tests which indicated that most aircraft can land safely under near "ceiling zero" conditions provided the center line is lit up.

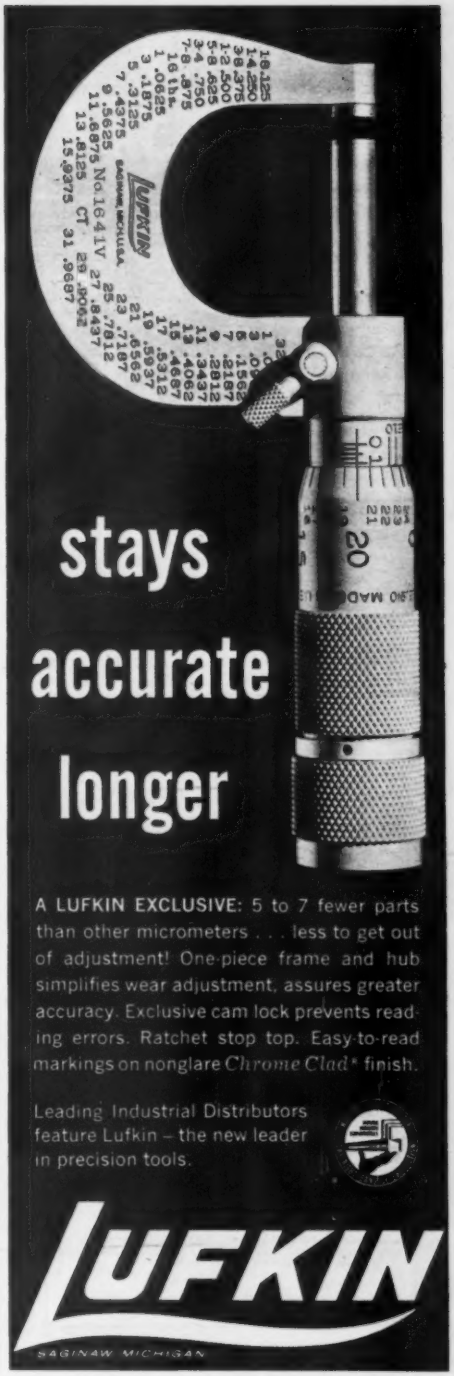
Merchant U. Morris of Indianapolis, Ind. won Patent 2,984,006 for a "butter dispenser" that automatically slices predetermined thicknesses of butter.

An incinerator on wheels for city and town sanitation departments burns to ashes all refuse collected by the truck during a normal day's work. The invention, Patent 2,985,120, was designed by John B. Brandt, Melbourne A. Noel, Harry J. Kelly and John J. Burns of Chicago.

An ultrasecret radio communications system that discourages an enemy from intercepting radio messages during wartime was patented by Claudius H. M. Roberts, Washington, D. C., and Wilbur D. Hinman, Jr., Falls Church, Va. Assigned Patent 2,987,614, the system permits speech to be compressed and coded on tape into a series of pulses, each lasting only a few thousandths of a second, and beamed over transmitters.

A single-unit polishing kit that can be conveniently carried in a suitcase or handbag while traveling won Patent 2,986,762 for George R. Webb of East Point, Ga. The hourglass-shaped container holds the liquid shoe polish and has an applicator and brush attached so that the polish can be applied without soiling the hands. The unit is capped when not in use.

An educational game that helps youngsters master the English language won Patent 2,987,833 for Beulah Harris Stolpen of New York City. It is made up of "dice" containing words and numbers on each face. The child tries to form sentences from the words turning up on each roll. •



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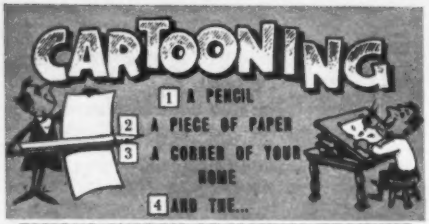

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The sea lamprey, a parasitic fish that attaches itself to its helpless prey, has been held responsible for the virtual disappearance of lake trout in the upper Great Lakes.

Asian eating habits are veering to Western-style cooking, some observers claim, because it is easier and quicker to prepare.

Micrometeorites, or space dust particles, have velocities of 6.8 to 47.8 miles per second.

Hawks are aggressive and extremely greedy birds but during the courtship and nesting periods the male feeds his mate.

One reason that the Japanese beetle flourishes: it can feed on 280 kinds of plants.

Heavy coffee drinkers develop a strong dependence on the stuff, suffer headaches and general sluggishness when it is withdrawn.

Hepatitis, a virus disease that involves infection of the liver, has become one of the major communicable disease problems in the U.S.

A tiny shrimplike animal, the *Cythara polita*, is an index to water purity, according to a recent study. Its presence indicates normal and healthy conditions for growth along the coasts and its absence indicates pollution.

A study of school-age eating habits reveals that only one of every five children goes to school with an adequate breakfast.

Bacterially-caused skin diseases of animals and man, particularly those affecting hairy pelts and the human scalp, generally resemble each other and in a number of cases they may be transmitted from animal to man—and, to be perfectly fair, from man to animal.

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A TYPICAL SLOTH snapped in the rush hour.

IF there's a lazier mammal on earth than the sloth, science hasn't discovered it. Although the sloth can live up to 11 years in captivity, in its native habitat, from Honduras to Bolivia, it seldom lives more than six. Of those six years the normal sloth sleeps at least four and one-half years. The rest of the time it eats.

At top speed (which it seldom reaches) this odd creature can travel a mile through the tree tops in 12 days—upside down.

The sloth's sad round face looks strikingly human but without external ears. His fur looks green. It's really a grayish-brown but each hair has a single groove that gets clogged with green algae during the rainy season.

The sloth sleeps upside down, its four feet close together on a limb and its head nestled between its front legs. No sloth has ever been known to fall unless hard-pressed by an enemy. Sloths often go right on hanging after being shot.

Sloths hate company. They mate quickly and part. Young sloths are born singly. From birth to the age of five months they cling to their mothers' bellies; then they go off on their own. They are so unsociable that two penned together will usually fight to the death with their strong, curved claws although they never seem to use these weapons in defense against predators.

The sloth is a vegetarian. Hanging by three feet on a limb the sloth slowly draws leaves to its mouth with its free forepaw, munching steadily. Its color is its only defense against jaguars, large birds of prey and meat-hunting natives. However, the sloth maintains a stable population level.—*Robert Gannon.*

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MI Classified Advertisements

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LEARN PLASTICS fabrication for extra income. Low cost home training now available. Write for free booklet. Interstate Training Service, Dept. D-4, Portland 12, Oregon.

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TENTS. GOVERNMENT Surplus. 5 man hexagonal, pyramidal. Cost $140. Our price $39.50. $275 paint spray unit. $44.50. Free folder. IMSCO, 1829 S. State, Chicago 16.

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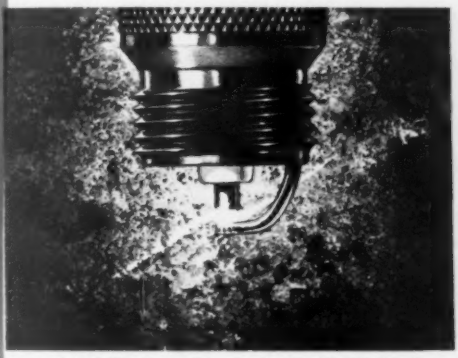
!NEWS!

FORD MOTOR COMPANY SWITCHES TO AUTOLITE

Autolite Spark Plugs are now specified for original equipment installation on every vehicle that rolls off Ford Motor Company assembly lines. And they are strongly recommended by Ford Motor Company engineers for replacement use in all units now in service. Why does Ford Motor Company, like so many other manufacturers, specify Autolite? One of the main reasons is the way Autolite Power Tip actually cleans itself while you drive. See pictures below.



In each Autolite Power Tip spark plug the electrode or firing tip is longer than usual. This tip is made of a special heat resistant alloy. Now, watch what happens.

As you drive, lead and other harmful, fouling deposits start to accumulate on the firing tip. If allowed to remain, they will eventually short out and kill the plug.

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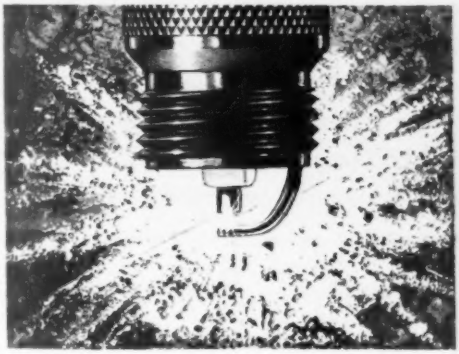
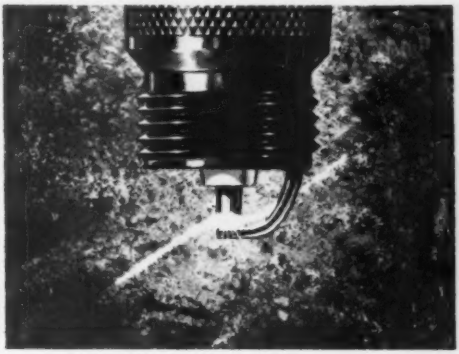


With a Power Tip, each time your engine fires, the deposits are actually burned away. Your spark plugs stay clean, so that your mileage and power stay at their peak.



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UNCLE TOM ANSWERS HIS MOST INTERESTING LETTERS IN THIS COLUMN. WRITE TO HIM AT *MECHANIX ILLUSTRATED*, 67 WEST 44TH ST., NEW YORK 36, N. Y.

● *The other night my wife and I stayed in a motel where all the windows but the smallest were permanently shut. It was hot and the air conditioning hadn't been switched on yet. Frankly, it was horrible. How do you decide on a good motel before signing in?*

Norman F. Harper
Des Moines, Iowa

Before stopping at *any* motel (especially the big chain ones) that's been built in the past two years, I recommend the suspicious approach. Apparently the motel architect of today is a combination mole, tree toad and sloth. Far too many motels that advertise "Full air conditioning" are frauds, especially during the period between seasons. I've been told in these airless pits on hot days that "The air conditioning hasn't been switched on yet; we're still on heat." On cold days, I've had exactly the opposite pitch. My advice is to look for a motel that has individual air conditioning units and heating units, either of which can be used at any time in *your* room at *your* discretion. Nine times out of ten, when the heat and conditioning are centrally-controlled by the management, you are in for an uncomfortable breathless night.

● *What ever happened to the Stearns-Knight automobile?*

Francis T. Walker
Rochester, N. Y.

The same thing that happened to Nero—it died. It was a good car, however, with a sleeve-valve engine. The late Charlie Stearns of Cleveland was an old friend of mine.

● *McCahill, you seem to travel all over, every place. Does local drinking water ever bother you? If it does, how do you solve the problem?*

B. F. Crane
Portsmouth, N. H.

Local drinking water is a major problem to most people who do much traveling. It can even kill you in some sections, south of the border. In the States, however, various purifying methods, especially when heavy chlorine is added, can be as tough on your stomach as the disease they allegedly prevent. Some hotels, particularly in New York City, seem to add an extra slug before you get it. In Detroit and Dearborn, at times, the water is tough enough to curl the toes on a bronze statue. Whenever feasible, I carry as much bottled water from home with me as I can, particularly for my dogs. They actually do get sick from the water in some parts of the country. Many ball clubs and race horse owners carry their own water when hitting the road. The surest bet is to stick with Jack Daniels and his friends.

● *Though I have only read one of your great magazines, I was very disappointed in the way you answer questions that people write in. Like when Karl Gerber of Chicago, Ill., asked if you could explain how a distributor works. All you answered was "Yes."*

Steve Sepan
Linden, N. J.

That's all he asked, wasn't it?

● *My husband and I had a difference of opinion concerning the 1961 NSU Prinz Sports Model. I wonder if you could give your frank and honest opinion of this car?*

Mrs. E. Mills
Calgary, Canada

Yes.

● *I have a feeling that some of the motor clubs don't always give you the quickest and best routes from one spot to another on long trips. Have you found this to be true,*

[Continued on next page]

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Mail For McCahill

[*Continued from page* 47]

Uncle Tom?

Herbert Folg
Detroit, Mich.

Herb, old boy, you can't be *that* naive! Mo of the automobile clubs get a large part their income from those "Recommende signs that hang outside motels, restauran and service stations. The route you'll get, most cases, will be one on which most of the "recommended" traps are located. In othe words, if enough hotels, motels and restau rants subscribed to their service, on a tr from New York to Pittsburgh they migh easily route you via Juneau, Alaska.

● *Have just read your article on the Inter national Harvester Scout and noticed the you have had trouble with it and your Jee when stuck in the mud. Try a tip from an ol truck driver: next time one front and on rear wheel spin in the mud, lightly apply th brakes with your left foot. This will lock th spinning wheels and transfer the power to th two other wheels. We have this same troubl with dual-drive trucks and find that brakin in this way helps out sometimes.*

Jack L. Karr
Sacramento, Calif.

Good trick. It'll sometimes get you up a icy hill, too, when the vehicle isn't equipped with a limited-slip differential.

● *Every time we have heavy fog or rain my 1956 car is extremely hard to start; i fact, some times it won't. Our mechanic tol my wife that the ignition wiring was shot. Ca these wires wear out?*

Ted Carlson
Flushing, N. Y.

Chances are there is nothing wrong with the wire but the insulated covering could possibly be baked and cracked badly. This can cause complete ignition breakdown under extremely damp conditions. The best solution is new wiring, although there are some lacquer-like preparations that can be painted or sprayed on the wires for temporary relief. Incidentally, those auto electric geniuses who make voltage and other such tests of your ignition system from time to time, using spike-like connectors which puncture the insulation to get at the wire, can louse you up, too. Unlike the human body that's been jabbed with a hypodermic-full of penicillin, the holes in the wiring won't heal over and the first foggy day may find you with an ignition breakdown which could range from a single misfiring plug to complete failure, just be-

[*Continued on page* 50]

you get ACtion with AC

AC SPARK PLUG ⊛ THE ELECTRONICS DIVISION OF GENERAL MOTORS

Extend your engine's life with modern lubricants and AC Triple-Trapper Filter ACtion

Today's motor oils are built to give long-lasting protection to modern high compression engines. They have detergents and additives that prevent hard carbon formation, reduce rust and corrosion, inhibit oxidation and work in many other ways to give engines better performance, greater fuel and oil mileage and longer life.

To insure continuing effective lubrication, you need a modern oil filter—an AC Triple-Trapper Oil Filter—to remove the abrasive contaminants that get into your oil. These wear precision parts and help build power-robbing sludge.

AC Triple-Trapper Oil Filters stop particles as small as 1/15 the diameter of a human hair, and they trap the contaminants that form engine-damaging sludge. Most important, *they allow full flow of the detergents and additives that give modern oils their superior protective qualities.* You'll keep your engine clean and powerful by the regular use of premium oil and AC Triple-Trapper Oil Filters. Ask for the best filtering action you can buy, ask for AC.

AC TRIPLE-TRAPPER OIL FILTERS

[Continued from page 48]

cause Jojo spiked the circuit while making a test.

● *I'm thinking of taking up the antique automobile collecting hobby. But before I buy one, I'd like to ask you why there is such a wide range of prices for cars of the same period?*

Abner T. Plummer
Kansas City, Kansas

In the antique car field, the cars that are most symbolic of their era, and that are rare, command the highest prices. For example, the Model T Ford certainly symbolizes the 1920s but there are still so many Model T Fords around that prices are comparatively low. The Flaming Youth Dream Buckets such as the Stutz Bearcat and Mercer are extremely rare; therefore, in top shape they bring prices three to four times their original cost. Some classics of the era such as the Simplex, very early Rolls, certain steamers and old, old Packards and Pierce-Arrows also command top prices. Many cars such as the Star, Durant and similar ilk weren't thought of too highly even when they were being built. Supply and demand are the guiding factors.

● *When you raced the Twentieth Century recently from Chicago to New York and beat it by two hours, did you know you could do it before you started?*

E. F. Michell
Bridgeport, Conn.

Yes, we knew we could do it, providing the car stayed together. We had done it several times before in other tests. It required no tricks aside from fast service station stops, maintaining a good average speed and staying awake.

● *Do you recommend setting out flares when faced with an emergency on the highway?*

L. Sloan
Atlantic City, N. J.

Not if it's possible to pull well off the road in the vicinity of large trees.

● *Why do you try to make all garagemen look like robbers?*

Howard W. Lawrence
Tempe, Ariz.

[Continued on page 52]

Just a Few Months NEW and Already One of the HOTTEST Money-Makers for Men Everywhere—even Spare Time!

HOW HOT? Read how great these men are doing!

MERLITE Longer-Life Light Bulbs—the Only Bulbs in the World Backed by this SENSATIONAL GUARANTEE:

Averages $12 an Hour

"Merlite Bulbs are the answer to a salesman's prayers. They're fantastically easy to sell. Working only part time, I have averaged $12.00 per hour."
Philip Smith, Maine

Sold 178 Bulbs First Afternoon

"The first afternoon I sold 178 bulbs. Am very pleased with reception we get from customers. Please ship my next order at once."
W. E. Foust, Arkansas

Makes $8.20 an Hour in Just Spare Time

"These guaranteed Merlite Bulbs surely sell. I've averaged $8.20 per hour for the time I've spent with them. That makes a nice income and wish I could give full time to the job."
L. C. Benedict, Virginia

ONCE YOU BUY MERLITE LIGHT BULBS—YOU NEVER HAVE TO BUY BULBS AGAIN—*NEVER!*

Daring NO-TIME LIMIT FREE REPLACEMENT GUARANTEE
Does the selling FOR YOU—MAKE up to $1,000.00 in a MONTH!

It's fantastic—14 magic words (ONCE YOU BUY MERLITE LIGHT BULBS—YOU NEVER HAVE TO BUY BULBS AGAIN—*NEVER!*) are making it easy for men everywhere to make a "small fortune"—as much as $1,000.00 and more in a month, spare time or full time! No demonstrations, no fast-talking sales pitch needed. Almost everyone jumps at the chance to buy Merlite Bulbs with the iron-clad Guarantee (packed with each bulb) that unconditionally offers to replace FREE any burned-out Merlite Bulbs, no matter when they burn out—in 5 years, 10 years—NO TIME LIMIT! And the Guarantee applies to all Merlite Bulbs purchased or replaced! Every home needs 12 to 24 Merlite Bulbs to replace old-fashioned short-life non-guaranteed bulbs. Make up to 120% profit, easily make $50 in few spare hours. Merlite men are doing this now.

FREE Money-Making Details Amazing No-Risk Offer

Find out for yourself how much money you can make with the sensational Guaranteed Merlite Long-Life Light Bulb. We'll send you—FREE and without obligation—complete money-making Illustrated Sales Outfit and an astounding offer which helps you get started making money without risking a penny. Mail coupon TODAY!

Merlite Industries, Inc., Dept. C-10K
(Bulb Div.) 114 East 32nd Street. New York 16, N.Y.

Merlite Industries, Inc., (Bulb), Dept. C-10K
114 East 32nd Street, New York 16, N. Y.
Rush complete money-making illustrated Sales Outfit and No-Risk Starting Offer—FREE and without obligation.

Name .....

Address .....

City ..... Zone ..... State .....

In Canada: Mepa Co., Ltd., 371 Dorval St., Montreal 1, P.Q.

What to do about high repair bills...

for about half your driving

Your engine needs an overcoat

All but about 1/10 of your horsepower stays "under wraps", not being used, during most of your driving time. Result: incomplete burning of gas, carbon deposits, sludge build-up and excessive engine wear that lead to repair and replacement expense.

But Pennzoil Z-7 stops that. Gives your engine the *full-time* lubrication protection it needs. Stands up under the grind of low-speed traffic as well as high speeds. And its power ingredient, Z-7, keeps engine parts *clean*, straight through to the next oil change.

So end unnecessary repairs. Get more miles per gallon and stepped-up all-around performance with Pennzoil. Ask for Pennzoil Z-7 by name at your service station, garage or car dealer. Always be sure that you remember to sound the "Z" that makes PENNsylvania OIL—PENNZOIL.

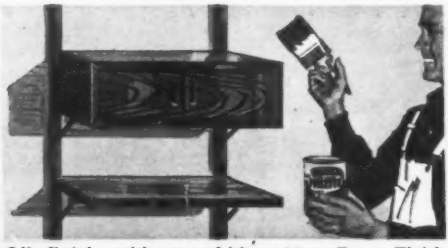
PENNZOIL Z-7 — WORLD'S RICHEST, MOST COMPLETE MOTOR OIL

Member Penn. Grade Crude Oil Assn., Permit No. 2, Oil City, Pa.

New from Weldwood®

DEEP FINISH FIRZITE

Penetrating Sealer-finish



Oil finish without rubbing. New Deep Finish Firzite® produces a beautiful Danish-type "hand-rubbed" effect. Just brush on, wipe off!

Almost indestructible floors. Deep Finish Firzite *penetrates* the wood fibers—producing a beautiful low-luster finish that wears with the wood.

Seals as well as its famous predecessor, Clear Firzite! Deep Finish Firzite helps prevent grain raising or checking on painted or varnished surfaces, and "wild grain" when staining softwoods.

FREE—8-PAGE BOOKLET! "Professional Gluing And Wood Finishing Guide." For free copy, write: United States Plywood, Dept. MI 10-61, 55 W. 44th St., New York, New York.

WELDWOOD WOOD FINISHES

Products of United States Plywood

Mail For McCahill

[*Continued from page* 50]

Because many of them are. I was one the biggest.

● *I don't know enough about cars to a you questions about them. The only pro lem I have with driving is I jump like a fr when I start out from a standstill.*

Mrs. Joseph T.
Patterson, Ca

Have you thought of contacting Ringl Brothers in Sarasota, Fla., or Ed Sullivan?

● *I am a college student and I have decid to go out into the Auto World.*

Richard Brigm
Columbia, S. C.

Boy, that's *way* out!

● *A buddy of mine has a new stick-sh big-engined Valiant. While riding w him the other night we both agreed tha this Valiant had been imported from Kraw ville, Frogsville or Spaghettiville it would treated like a sensation and have a price of around $8,000 to $9,000. Wonder what y think about this, Uncle Tom?*

Art Grant
Dallas, Tex

With $1,000 extra added for top-gra leather upholstery, instruments and fittin plus some hand finishing, I agree with you per cent.

● *P.S.: I bet you won't put my above let in your column.*

Welland Griswo
Clio, Mich.

You win.

● *I have heard a lot about the alterna which is in all Chrysler products th year. A friend of mine and I have been havi an argument for some time on whether or n this alternator generates alternating curre I say that it doesn't. Am I correct on this?*

Norman Sinnott
New Plymouth, Ida

No, you are wrong. The alternator gene ates alternating current and uses rectifiers convert this to direct current. It might co as a surprise to some to know that the com mon generator used for so many years al produces alternating current. This is chang into direct current after flowing through th commutator and brushes.

● *In this age of souped-up motors, I ma be some sort of freak because I un-soup*

[*Continued on page* 54]

50% MORE TIRE MILES?

© T.M. of Tyrex, Inc. Transport ®—T.M. Firestone Copyright 1961, The Firestone Tire & Rubber Company

Says who? (*We do—and here's proof!*)

When fleet tests of the new Firestone Transport-100 hit 109,000,000 miles, we knew we *had* something! Findings: up to 50% more original tread mileage and much greater drive wheel traction. It requires only 2/3 the stopping distance most other truck tires took on wet pavements. With a new 3-rib tread design, built with Firestone Rubber-X and Shock-Fortified cord bodies, the Firestone Transport-100 comes to you *at no extra cost.* In nylon or Tyrex® rayon cord, tubeless or tubed, at your Firestone Dealer or Store.

Firestone

TRANSPORT-100 TRUCK TIRE

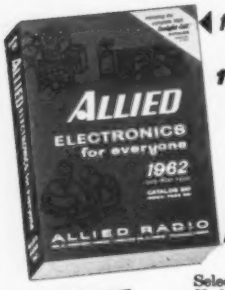
space age hobby

BUILD-YOUR-OWN ELECTRONICS FOR MODERN LIVING

IT'S FUN...IT'S EASY WITH MONEY-SAVING

knight-kits®

A PRODUCT OF ALLIED RADIO



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1962 ALLIED ELECTRONICS CATALOG

free send for it!

Select from more than 70 exciting Knight-Kits! See—Stereo hi-fi, including new Multiplex Stereo tuners and all-transistor amplifiers, short-wave radios, intercoms, Citizens Band radios, electronic science labs, test instruments—all easy to build and a pleasure to own! Send today for your FREE 1962 ALLIED Catalog!

Dozens of new hobbyist kits, including amazing Electronic Science Lab—over 100 projects!

Everything in Stereo hi-fi components; new Multiplex Stereo FM tuners

New—tachometer kit and outstanding test instruments

New all-transistor intercom; many other kits for modern living

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Easiest Terms

FREE CATALOG

ALLIED RADIO

WORLD'S BIGGEST

ALLIED RADIO, Dept. 44-K1
100 N. Western Ave., Chicago 80, Ill.

☐ Rush FREE 1962 ALLIED Catalog

Name_____
PLEASE PRINT

Address_____

City_____ Zone____ State_____

Mail For McCahill

[Continued from page 52]

mine. I took off the double barrel carb, made an adapter and put on a single barrel about half the size. I gained about 15 per cent in mileage.

T.P.
Greybull, Wyo.

So whaddya want from *us*?

● *Recently, while driving out in the country, I hit a nice, big, fat chicken and killed it. As there was no one else around I picked it off the road and brought it home for dinner. My husband said this was wrong and that I should have brought it to the farmer who owned it. What do you think?*

Mrs. G.B.
New Hope, Pa.

He was probably disappointed because you didn't hit four ribs of beef.

—*Tom McCahill*

DON'T DO-ITS

(Advertisement)

A number of one-man mail order enterprises are paying their owners an income of $40,000 to $50,000.

SPECIAL OPPORTUNITIES

Mail order is big business. Annual catalog sales volume of Sears, Roebuck and Co. is over 700 million dollars!

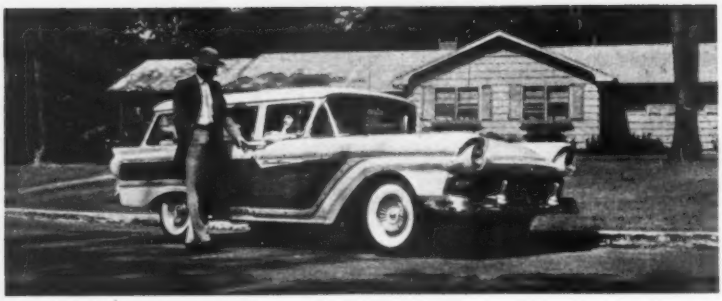
HOW TO START

Your Own Mail Order Business

You can make a fortune by mail. New firms will set you up in a fabulous mail order business of your own! They'll make up your catalogs, prepare your advertising, supply mailing lists and even ship your products for you!

By Robert Stevenson

When Anthony Sambati injured his back and was laid off from work he never dreamed it would be a blessing in disguise. Bedridden for weeks, he decided to start a small mail order business. This was something he could run right from his own home and required very little capital to begin. In fact, Sambati started with less than $85.00.



After a short time in mail order, Sambati soon had a beautiful home with all the luxuries of a successful business man.

He figured that a small mail order business might provide a temporary income to support his family until he got back on his feet. His first step was to obtain a franchise from a large wholesale mail order firm which supplied him with all the necessary catalogs and mailing literature. It wasn't long until his spare-time venture blossomed into a booming enterprise. Drawing a small salary and pouring the rest of the profits back into the business, he soon had others working for him! Today he owns a large retail store, his own warehouse and a beautiful home with all the luxuries of a successful businessman.

Sambati's story is typical of a number of men and women who began a small mail order business with absolutely no previous experience, and made a huge success of it. These 'little' people are quietly pocketing big profits every day—many content to keep the business small . . . spending an hour or two each day in the privacy of their own home. No bosses, time clocks or small pay envelopes. No door to door selling, in fact, you never even meet your customers face to face.

Yes, a small one-man mail order business is ideal for anyone wanting a chance to gain financial security and independence. Yet thousands try mail order each year and fail, simply because they don't learn the few simple secrets of success early in the game.

Take the case of Bud Sheer who had been working for a theatre in a small New Jersey town. With only a few hours spare-time to spend each morning, he tried mail order to supplement his regular income. Like many beginners in this field, Sheer was faced with the problem of finding good mail order items which would have a high mark-up and repeat sales potential. But the biggest obstacle was the expense of printing a catalog.

Then he heard about the A. J. Statile Co. of Hillsdale, New Jersey—an organization set up to aid the small mail order beginner.

He wrote to A. J. Statile Co. for full information, sent in his application for a franchise and within a short time the cash began rolling in. Today Bud Sheer *owns* the theatre he once worked for. Sheer attributes his success in mail order to the A. J. Statile Co. Actually, the theatre he owns has become a side investment. He still uses the beautiful 300 page mail order catalogs supplied by A. J. Statile Co.

How does the Statile Co. help the beginner get a sound start in mail order? Very simply. Just as Henry Ford made automobiles within the reach of the general public—by mass production and large volume.

Let's take a few specific examples:
(1) All franchised dealers of A. J. Statile are offered ready to mail catalogs and sales literature. Each mailing piece has the dealer's name and address printed right on it. By printing millions of catalogs, Statile is able to offer these at a fraction of their regular cost. The artwork and layout costs for these catalogs would run into thousands of dollars for the beginner if he were starting from 'scratch'.

(2) Since all mailing material and catalogs contain your name and address, all orders come directly to you. Yet you don't have to invest one penny in inventory. All merchandise is stocked for you. In fact Statile has over $3 million dollars worth of mail order merchandise at your disposal.

(3) All packaging and shipping is done for you. You simply send a shipping label to Statile together with the wholesale cost of the items, and the merchandise is shipped directly to your customers under your own shipping label.

(4) A consultation service is provided to answer any questions you may have. You receive a secret list of over 100 national magazines which run free ads. You'll be shown how to obtain free publicity on your own mail order items. In addition, you obtain trade names and addresses of over 150 other mail order wholesalers who drop-ship top mail order items for you. You'll also be given all the government laws and regulations pertaining to a home operated mail order business. These laws are a 'must' for all beginners.

All this valuable information is covered in the Statile Mail Order Survey which every new franchised dealer receives from Statile before they begin. Formerly sold for $25.00, this survey has become the 'bible' of the trade. Mr. J. M. of Baltimore, Md., writes, "To tell the truth, all the information in regard to obtaining free ads is alone worth the $25.00 I paid you . . ." J. D. of Kalamazoo, Mich.,

states, "Just a personal note to say I am most satisfied with my $25.00 investment. Your sales plan is simple and well organized . . ." These are only a few of the many testimonials received praising the Statile Mail Order Survey.

(5) The catalogs and mailing literature offered by Statile Co. cover every conceivable mail order item. You select the field you are interested in . . . BABY ITEMS, TOYS, APPLIANCES, VITAMINS, BOOKLETS AND MAIL

The thrill of receiving money in your morning mail is one you'll never tire of.

ORDER COURSES, you name it, Statile has the catalog or mailing piece. Select your market, order your mailing literature and you're in business.

(6) You'll be told how to compile your own mailing lists—and this is the most important part of your business. Many a beginner has fallen by the wayside simply because he mails his catalogs to a poor list of names. Suppose, for example, you offered a beautiful scale model of a 40′ Chris-Craft cabin cruiser by mail. You would probably make your mailings to boating enthusiasts and the chances are that nine times out of ten your mailings would show a loss instead of a profit. How would Statile help you solve this particular mailing list problem? He would show you where to get the names and addresses of *actual owners* of 40 foot Chris-Craft cabin cruisers! Surely every owner would like to have a scale model of his own boat. Strange as it may seem, such a mailing list is available to anyone. The secret is where to find it. This is just one example of how an experienced mail order expert giving you personal advice, may mean the difference between success and failure!

This same method of obtaining selective specialized mailing lists may be applied to practically any market . . . selling baby items to new mothers, selling toys to young children, etc., etc.

So much for starting your own mail order business. Now, a word of caution. OBTAIN YOUR MAIL ORDER FRANCHISE FROM A REPUTABLE MAIL ORDER FIRM. Unfortunately, during the past few years a number of ads have appeared in newspapers and magazines offering to start people in mail order. The ads are grossly misleading. Many imply that you can become a millionaire over night if you use their catalogs. Beware! Particularly if they operate their own mail order business direct to the consumer. These firms compete with their own franchised dealers! They could just as well mail all the catalogs themselves. They don't need you.

Other shady firms fail to drop-ship your orders promptly, thereby losing customers for you. In mail order, prompt shipment is an absolute requirement for a successful operation.

Deal only with firms whose business is preparing catalogs and shipping merchandise. They operate on a strict wholesale basis for franchised dealers exclusively. Such a firm is the A. J. Statile Co. Letters from successful franchised mail order dealers speak for themselves. A woman from Milwaukee writes, "It has been better than my expectations." A gentleman from California states "we are quite pleased with the response we are receiving". Another man from Wisconsin writes, "To say the least, I am more than satisfied."

Yes, a small mail order business offers you an opportunity to earn a second income, or—if you work at it in earnest, a chance to strike it rich. The young housewife in St. Louis may be content to make an extra $20.00 a week . . . the office worker in Los Angeles may be aiming for $150.00 weekly full time business . . . and the ambitious schoolteacher in Newark may reach $20,000.00 a year. What is your objective? Set your own goal, pick your own hours, and the sky is the limit.

Even a government report stated that a number of the most successful one-man mail order enterprises make as high as $40,000 to

Big firms will carry all stock for you. They ship orders direct to your customers using your own shipping labels.

(Advertisement)

Your Own Catalogs of Top Mail Order Items!

A. J. Statile Co. will prepare your catalogs, write your sales letters, supply mailing lists and even ship merchandise for you, using your own shipping labels!

$50,000 a year! But frankly, this is the exception rather than the rule. Most mail order operators are content to earn a comfortable living doing little physical work, but enjoying their work thoroughly! We don't say you'll be a mail order millionaire or another Sears & Roebuck, but if you're looking for a business of your own with financial security, the answer is mail order. If you've already tried mail order with little or no success, don't give up! Try to analyze what went wrong. Success comes only to those who keep trying and learn from their own mistakes. Again we emphasize, deal only with a reputable firm.

The A. J. Statile Co. has been in business for over twelve years. They gladly furnish bank or trade references upon request. They are probably one of the largest mail order wholesalers in the country. Whether it be toys, gifts, vitamins or appliances—they've got it ready to ship under your label WITHIN 24 HOURS!

Firmly convinced that no other business offers the tremendous opportunities of mail order, A. J. Statile, president of the firm, is an outspoken advocate of the man or woman who wants to start in business for himself. As Statile puts it, "by all means, start your own business and start NOW! If you want a chance at security and financial independence make your choice mail order. There's nothing like it. Absolutely nothing!"

FOR FREE DETAILS

Mail coupon below—no obligation

A. J. Statile Co. • Department 10 • Hillsdale 10, N. J.

Dear Mr. Statile:

Please send me complete FREE details telling me how I may obtain a franchised mail order dealership with your firm. I understand I am under no obligation and no salesman will call on me.

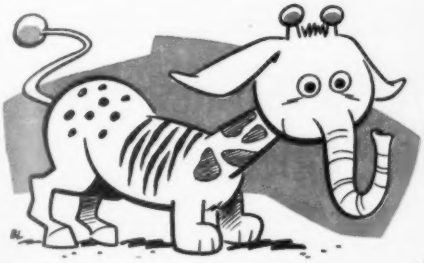
NAME..... AGE..... SEX.....

ADDRESS .....

CITY..... ZONE..... STATE.....

PREVIOUS EXPERIENCE, IF ANY.....

HALF-AND-HALF ANIMALS



LOOK what could happen if Nature allowed it.

RECENTLY the Department of Agriculture brought out the world's first churk—half chicken, half turkey. That made half-and-half animals hot news again. A few years earlier the Canadian government had another new cross—a half cow, half bison. The cattalo turned out well, being tough, winter-hardy, a good milker. Another cross that turned out well was the mule, which has been with us much longer—about 3,000 years. The mule is half jackass, half mare. No use has been found for the coydog—half dog, half coyote, the new addition to the fauna of the Adirondack Mountains of New York State. The theory is that pet coyotes, brought east by their owners, got loose and mated with local collies or German Shepherds.

A cat-dog combo seems to be impossible. Very dissimilar animals don't fall for each other, for one thing. And even if you get by this barrier with artificial insemination, it won't take.

The ultimate resistance is in the chromosomes. Each cell of every animal, be he earthworm or human, contains chromosomes. Half from ma, half from pa. Entwined around each chromosome are thousands of minute genes, each containing the plan for some aspect of the adult creature—color, shape, size, etc. In order for fertilization to take place, the chromosomes and genes in the sperm cell and the ovum must correspond closely.

When different species do get together on a batch of ill-assorted offspring, the young are often sterile. Mules are, and so are pheasant-turkeys and sweese (swan-goose mixtures). The gene arrangement in their chromosomes is all loused up and the genes of prospective parents of this type fail to unite.

I need hardly say that there are no raccoon-cat crosses, no rabbit-cat crosses, no mermaids—unfortunately.—*Robert Gannon.*

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HAVE FUN... SAVE MONEY

Have fun . . . save money . . . build the best! Now you can get world-famous Scott stereo components in kit form. Think of it . . . you can build the fabulous new LT-110 FM Multiplex Stereo Tuner . . . your choice of two complete stereo amplifiers, or a preamp and separate power amp . . . all from H. H. Scott!

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Export: Morhan Exporting Corp., 458 Broadway, N.Y.C.

SAVE $40

Revolutionary Patents! Lifetime Engineered!

FULL 22" LONG, 4½"

AMT JOINTER-PLANER

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DOES WORK OF $60 UNITS!

Wt. 18 lbs. Exp. Coll.

Now, at little more than a hand tool price a guaranteed professional quality precision machine which does same work as skilled hand planing . . . much faster, more accurately. Make accurate glue joints; rabetting cuts for doors, window frames, table drawers; square taper cuts for chair legs; accurate beveling. Helps amateurs produce quality work—with the sweat eliminated.

TOP QUALITY FEATURES SPEAK FOR THEMSELVES

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- Hardened, ground high-speed steel knives
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- Patent-pending lift-off guard (nothing to loosen)
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ORDER TODAY!

WHY THE LOW PRICE! Special patents, streamlined design features cut material costs, reduce production time. Parts made, assembled, tested and packed in our own factories . . . shipped direct to you. No retail store handling or profits to add to your cost.

YOUR MONEY BACK IF NOT SATISFIED. Send check or money order for full amount. Or send $4. deposit, balance C.O.D. 10-day money back guarantee. Return within 10 days for full refund. No questions asked.

UNCONDITIONAL 10-YEAR GUARANTEE!

AMERICAN MACHINE & TOOL CO. Dept. MI-101B, Royersford, Pa.

TIRE FACTS THAT CAN SAVE YOUR LIFE

ONLY ARMSTRONG TIRES HAVE PATENTED INTERLOCKING SIPES

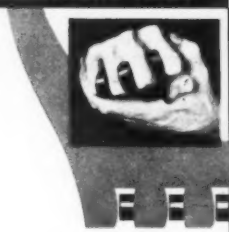
"SIPES" are the slots put in a tire's tread to give more gripping edges, to stop skidding. Armstrong's interlocking, S-shape siping (see magnified view at left) provides grip in ALL directions, gives you sharply improved protection against both forward and side skids.

AND UNLIKE tires which have siping just cut into the tread, Armstrong siping is *molded* in, deeply. Long after the mileage that wears away the shallow siping of ordinary tires, Armstrong siping continues to give you full protection. Safeguard your car against deadly skids . . . compare, and see how Armstrong gives you far more siping than other leading tires.

ONLY ARMSTRONG TIRES HAVE PATENTED SAFETY DISCS

—Grip the road to stop deadly skids as no other tires can!

AS LOW AS $10.95 (6.70x15) plus tax and your recappable tire

ARMSTRONG TIRES	ORDINARY TIRES
	
TREAD STAYS OPEN	**TREAD CAN CLOSE**
Like fist above with discs between fingers, tread CAN'T squeeze shut. Hundreds of Armstrong Safety Discs hold tread's gripping edges open, always ready to "bite."	Without discs, tread CAN squeeze shut, like fist above. Tire's gripping edges are pushed together, lose their grip. Even brand new tires can go smooth like this . . . and you skid!

ARMSTRONG RUBBER COMPANY
Home Office, West Haven, Conn.

MECHANIX
ILLUSTRATED
October 1961

Here it is...

FIRST SHOWING OF THE '62 CARS!

CONTENTS OF MI'S SPECIAL NEW CAR SECTION

Photos And Specifications Of The '62 Cars....62
McCahill Tests The New V-6 Buick Special.....71
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'62 CARS!

BUICK

Let's lead off with Uncle Tom holding down the '62 LeSabre. Outward changes in grille and fender don't tell which Buick engine is under the hood—the standard 375-cu. in., economy job operating on regular gas or the 401-cu. in. bully. Front-seat transmission hump is lower.

CADILLAC

Staunch survivor of the finny era is the '62 Cadillac. Innovations include split brake system to keep front or rear brakes working if other set fails. Also new are cornering lights located in headlight extensions. They go on with turn signal, shine at a 50-degree angle when car corners.

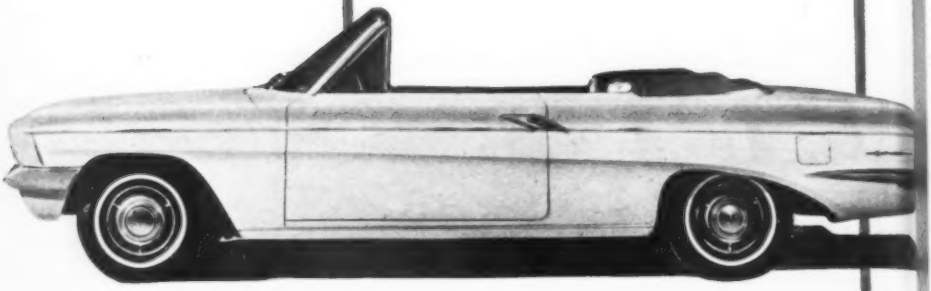
COMET

One-piece stamped aluminum grille is new with the 1962 Comet and when you walk around the back, the old oval taillights have become circular. In the non-wagon body types the fins are lower and the rear leans to Mercury styling. Standard and optional engines use regular fuel.

DART

Here's what the Dodge lads call the Dart's new long-hood, short-deck styling formula—appealing to those who dream of vintage dreamboats. There's more front-seat head and leg room. Six- or eight-cylinders can be had with all Dart models except certain eight-cylinder wagons.

'62 CARS!



F-85

Sports convertible, first in Olds lower-priced line, is one of eight F-85s for '62. Optional for convertible: front bucket seats. Better than '61: leg room in the four-doors, smoother Hydra-Matic and smoother ride. Also available is 185-hp Cutlass convertible with aluminum V-8 engine and bucket seats.

FALCON

New for '62 are the Falcon Squire (a four-door, simulated wood panel station wagon), a station bus and a club wagon. Engines available are a 144 cu. in. economy six or a 170 cu. in. six. Manual three-speed transmission is standard. Fordomatic transmission can be had with either of the engines.

FORD

This is the '62 Galaxie—slightly shorter and slightly narrower than last year. Twelve models in the Galaxie and Galaxie 500 line. Sixes and V-8 plants come with a choice of two manual and two automatic transmissions.

'62 CARS!

LANCER

New on sporty compact are aluminum grille, rear deck lid, taillights, instrument cluster. Series—170 and 770—will include two- and four-door sedans and four-door station wagons. Gas economy is improved. Chassis is pre-lubricated, sealed, serviced at 32,000-mile intervals.

LARK

Redesigned grille, rear fender and increased length and wheelbase mark 1962 Studebaker-Packard line. New Daytona series (not shown) will debut in convertible and hardtop with bucket seats, floor shift.

LINCOLN CONTINENTAL

Big luxury car emerges with new grille and a modest restyling of the lower rear panel. Improvements have been made in the engine, chassis and riding qualities of car. Four-door sedan is 213 inches long, 78.6 inches wide and 53.7 inches high. It rides on a 123-inch wheelbase.

'62 CARS!

MERCURY

Mercury Monterey Custom—a new series stemming from the familiar Monterey line—is shown here in its four-door hardtop aspect. Both Monterey and Monterey Custom feature Cushion-Link suspension for a soft, plush ride. Engine choice runs from a thrifty six to a 352-cu. in. eight.

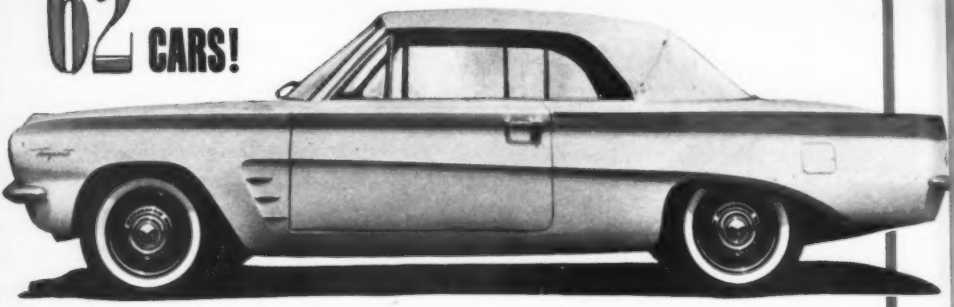
OLDSMOBILE

The convertible-type roofline, say Olds spokesmen, gives the new Olds 98 Sport Sedan the eye-appeal of a sports coupe with the advantages of a four-door. The '62 Skyrocket engine has higher compression (10.25 to 1) and maximum brake hp of 330. All new Olds models are longer.

PONTIAC

Bonneville, shown here, boasts four models. This is the two-door hardtop. The new Pontiacs are longer. The Trophy 425 engine, a 389-cu. in. job, is available in all Pontiacs in a wide variety of fuel, compression and transmission combos. Low, wide styling marks the '62 Pontiac line.

'62 CARS!



TEMPEST

Pontiac's Tempest has restyled radiator grille and a revised suspension system. Both the custom coupe and the convertible are available in a new luxury model with bucket front seats, scuff panels, Le Mans name plate.

THUNDERBIRD

The '62 'Birds will continue as hardtop and convertible models. Standard equipment includes 390-cu. in. engine, power steering, power brakes and automatic transmission. Car's swing-away steering column is an optional.

VALIANT

Here's the popular four-door sedan. Chrysler's new model for '62 is the sporty Signet 200, described as "America's lowest price hardtop with bucket seats."

THE NEW V-6 BUICK SPECIAL

A brand-new engine combines economy and durability in this "big-little" compact car.

By Tom McCahill

THE 1962 Buick Special offers as much in a compact as any car we've tested. The Special is a compromise compact car, meaning somewhere between very small and needlessly big. Introduced in 1960, the Special, powered by a V-8, 215-cubic-inch aluminum engine, got off the mark like a tortoise but finished out the model year running like a hare. The reason isn't even half-hard to figure out. Interior-wise, the Special had all the room and comfort of the big cars of only six or seven years ago in a neat, easy-to-handle package. It also had a happy head of performance. The '61 model was not a bomb but it moved very well for a compact.

The '62 Special is making its move to smash hard at the existing compact market with the most formidable array of offerings in the entire small-car

UNCLE TOM gave the new Special a hard ride at GM's proving grounds.

leagues. The big news is that in addition to the V-8 (which now comes with several variations), Buick is introducing a 90-degree V-6 (the two banks of cylinders are joined at a right angle)—about as rare on these shores as government lotteries and honest ward-heelers. Of course, Lancia in Torino, Italy, built V-6's successfully for years but over here a 90-degree V-6 engine is as rare as blooming gardenias in a blizzard. General Motors has been using a 60-degree V-6 truck engine with good results for quite some time but this was a big jump for Lowell Kintigh, Chief Engineer of Buick, to take. Actually, the new V-6 *is* the V-8, design-wise, with the two front cylinders sawed off and with a cast-iron block instead of aluminum as in the V-8. Better than 40 per cent of the V-6's parts are interchangeable with the V-8. The engine displaces 198 cubic inches and can run from here to Tokyo on regular gas. (*Editor's Note: For more details about Buick's V-6 engine see the two pages following this test article.*)

The V-6 is our principal test car in this report and to bring it to you we motored (as they say in Piccadilly) to the giant GM Proving Grounds in Milford, Mich. Now, in engineering circles (or squares, if you prefer) it has been generally conceded that a 90-degree V-6 would be slightly rougher than running into your tax examiner at "21" with a babe on each arm. Buick had proven this to be a fallacy; their new engine is as smooth as a greased weasel in all ranges from a standstill to 100 mph. Performance-wise, it's not the least embarrassing, batting out 0-60 mph at an average time of 12.4 seconds. From an economy standpoint, a number of test runs proved that at typical highway speeds the V-6 will average out to just about 22 mpg, depending on the driver and terrain.

Buick has another little box of goodies for the Special in its new four-speed, fully-synchromesh manual transmission. This four-speed gearbox will quickly separate the drivers from the clods. For the guys who really like to drive, a well-tuned car with a good four-speed box is like money from home. The V-6 can also be had with automatic transmission, of course.

A brand-new offering this year in the Special line is a sharp-looking convertible with real bucket seats. If the price is kept within reason, this one little item alone should prove more popular with the sportier group than a fresh shipment of hashish in a coffee house. Also up Buick's sleeve, and a car I couldn't resist testing (though I didn't give it the full wring-out), is their optional V-8 job. It has an 11:1 compression ratio,

NEW FOR '62 is this sharp convertible. All Special models are also available with a hot V-8 engine and four-barrel carb.

TEST CAR SPECS

MODEL TESTED: **1962 Buick Special**
ENGINE: **V-6** cyls; **198** cubic ins; **135** brake hp; **205** ft-lbs max torque; **8.8** to **1** compression ratio. Bore **3.62** ins; stroke **3.2** ins. Fuel required: **Regular.** Standard axle ratio: **3.08.** Wheelbase **112** ins; length **188.4** ins; height **52.8** ins; width **71.3** ins; front tread **56** ins; rear tread **56** ins. Weight **NA** lbs. Gas tank capacity **16** gals. Turning circle diameter **NA** ft. Tire size **6.50 X 13.**
PRICE (without optionals): **NA**
PERFORMANCE: **0-30** mph, **4.3** secs; **0-60** mph, **12.4** secs; **40-60** mph, **7.1** secs. Top speed **100** mph. All times recorded on corrected speedometer. **NA:** Not Available at press time.

four-barrel carburetor and the four-speed stick mixer. In the convertible or Skylark this bomb-like combination will prove a sensation on anyone's dragstrip, as I soon found out. Zero-60 mph with this pickle atomizer averaged a fabulous 7.9 seconds! It would hit 100 mph in under 22 seconds from a standstill. As performance buffs around the world know, bombs that come in small packages offer twice the delight when the light goes green than the same performance does from a gigantic blockbuster. In other words, there's very little kick in outdragging other cars from a traffic light when you're mounted on a rip-snorting, well-known performance king. But to do it with a comparatively mild-looking compact is similar to the thrill a Little League pitcher would get by striking out Mickey [*Continued on page* 142]

LUXURY version is snappy Skylark sports coupe with fabric-covered steel hardtop.

FAMILIAR Buick "mouse holes" have been stylized to make trademark for Specials.

CLEAN LINES and real bucket seats are two features that our Uncle Tom approved.

COVER STORY

BUICK'S NEW 90-degree V-6 engine is the world's first such passenger-car power plant.

By Lowell A. Kintigh

Chief Engineer

Buick Motor Division

General Motors Corporation

The Man Who Built It Explains...

"WHY WE DESIGNED THE V-6 ENGINE"

THERE were several factors that influenced the design and development of Buick's new six-cylinder engine, introduced on the 1962 Special. Buick has been building eight-cylinder engines for 30 years but with the advent of the new Special Series a need developed for a six-cylinder engine as a companion to the highly successful aluminum V-8 introduced in 1961. At the same time this would give us an opportunity to have

something to offer the customer who preferred a six-cylinder engine because of the added economy of operation and servicing.

In selecting a six-cylinder engine design many factors were taken into consideration, among them: 1. Compactness —to fit existing chassis. 2. Light weight. 3. Rigid construction—for long life. 4. Modern efficiency and economy characteristics. 5. Minimum vibration. 6. Maximum interchangeability of components with its companion aluminum V-8. 7. Compatibility with existing manufacturing facilities.

With the above factors in mind, many configurations of six-cylinder engine designs were considered, such as an in-line, a 60° V-6, a 120° V-6 and a 90° V-6. The only design to satisfy all these requirements was the 90° V-6. (This means that the V between the two banks of cylinders forms a 90-degree angle.—*Editor.*)

At the outset, we set as our standard an engine that would be a fitting companion to our aluminum V-8. This was quite a challenge because this engine had established a reputation as being quiet and smooth running, with outstanding performance and economy characteristics. We also set as our goal an engine that would out-perform any in-line six then offered by our competition. Both goals were achieved.

Engineers have historically shied away from a V-6 design because of the balance problems involved. These problems were considered insurmountable years ago. But with the present knowledge of vibration characteristics, and the use of more resilient materials in engine mounts to dampen out these vibrations, only an expert can tell today whether a car is powered by a six- or eight-cylinder engine without lifting up the hood and counting the cylinders.

The general V-6 engine specifications are as follows:

Bore	3.625 inches
Stroke	3.200 inches
Displacement	198 cubic inches
Compression Ratio	8.8:1
Gross Torque	205 at 2400 rpm
Gross Horsepower	135 at 4600 rpm

The V-6 combines the economy characteristics of a six-cylinder engine with the performance characteristics of a V-8. The power curve shows that the torque output of the V-6 follows a very similar pattern to a 90° V-8 and its performance characteristics have a marked superiority over existing in-line sixes in the normal driving range.

In addition to being new, the V design resulted in a great weight saving. This engine, although it is made of cast-iron, is only about 50 pounds heavier than our aluminum V-8 and is nearly 150 pounds lighter than comparable in-line sixes used on competitive makes of cars. This weight saving is very important, both to the customer and to the manufacturer. The customer profits from greater economy and Buick did not have to change the basic suspension system of the Special in order to accommodate the new engine. A slight change in the spring rate is the only suspension modification that had to be made to change from the aluminum V-8 to the cast-iron V-6. This weight saving, plus the higher power output per cubic inch of displacement, makes the V-6 powered Buick Special a better performing car than any competitive in-line six of comparable displacement.

From an engineer's standpoint, the V-6 is a very efficient design. The two separate banks of three cylinders each operate almost as two individual but closely-coupled engines. Each bank of cylinders is fed off one barrel of the two-barrel carburetor. This results in a more evenly balanced fuel distribution to each cylinder. There is no problem of one cylinder getting a richer mixture of gasoline than another. The suction and exhaust strokes are evenly spaced in each bank of cylinders. This makes for better breathing and better scavenging of exhaust gases without interference from adjacent cylinders.

The V-6 is almost an exact duplicate of the V-8 with the two front cylinders cut off. All parts on the front of the engine, such as the oil pump and the water pump, are interchangeable. The automatic transmission used with the V-6 is interchangeable with the V-8. The synchromesh transmission is also interchangeable but [*Continued on page* 143]

The '62

Smaller than the '61, the new

By Tom McCahill

THE 1962 Plymouth has undergone more changes than a 50-year-old Las Vegas stripper. Right from the bottom up the Plymouth is all new, in the sense of what "new" means in Detroitese. In Detroit, "new" doesn't mean a guy in a white coat went out and invented a new type of wheel. It merely means the total

LOWER hoodline marks trend to continental styling. Note unusual headlight spacing.

TAILLIGHTS are built into rear facing of trunk. Parking lights are beneath bumper.

OVERALL length is reduced seven inches from '61; wheelbase is down two inches. Resemblance to Valiant is apparent here.

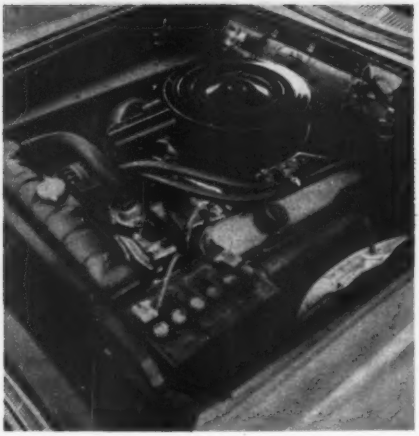
PLYMOUTH

Plymouth offers big-car acceleration and top roadability.

assemblage is new for this particular bucket—with a few genuinely new items tossed in just to keep the dictionary straight.

Style-wise (and when Detroit says "new", styling is usually what they mean) the 1962 Plymouth is as different from last year's model as President Kennedy is from Rutherford B. Hayes. If you approach the new Plymouth for the first time from a side profile, or from either end, you'll observe a phenomenon brand-new in automotive styling. For one of the few times in Detroit history, the big brother has borrowed quite a few buttons from junior—in this case, the Valiant. The 1961 Plymouth was about as exciting looking as a janitor's

BROAD, concave grille of anodized aluminum is integrated with inner headlights. Outer pair are cradled by bumper depressions.



TOM SAYS Golden Commando engine will enable Fury to keep pace with Chrysler 300.

'62 PLYMOUTH sports excellent instrument panel with big, easy-to-read speedometer.

ROADABILITY is best in its class, Uncle Tom claims, though suspension is softer.

suspenders, though it had a heart of pure gold. In '62, if you look real hard, the slightly Teutonic looks of the Valiant, enlarged, stand out like a hip flask in a bikini. What *isn't* pure Valiant is some continental (European-type) styling, such as the low hoodline.

To come up with such a low hoodline, the engine was dropped in the frame and moved forward. Plymouth's engineering brains claim this only alters the weight distribution one-half of one per cent. The really big news in a car of this type is that the Plymouth now sports a real 300-type instrument panel and one of the best, easy-to-read speedometer rigs to emerge from the Michigan marshes in many a moon. There is only one idiot light (for oil pressure) and a new gauge called "alt" for alternator, instead of [*Continued on page* 140]

TEST CAR SPECS

MODEL TESTED: **1962 Plymouth Fury**

ENGINE: **8** cyls; **361** cubic ins; **NA** brake hp; **NA** ft-lbs max torque; **9** to **1** compression ratio. Bore **4.12** ins; stroke **3.38** ins. Fuel required: **Premium.** Standard axle ratio: **2.76.** Wheelbase **116** ins; length **202** ins; height **54** ins; width **75.4** ins; front tread **59.4** ins; rear tread **57.5** ins. Weight **NA** lbs. Gas tank capacity **20** gals. Turning circle diameter **40.3** ft. Tire size **7.00 X 14.**

PRICE (without optionals): **NA**

PERFORMANCE: **0-30** mph, **3.2** secs; **0-60** mph, **7.7** secs; **40-60** mph, **4.0** secs. Top speed **120** mph. plus. All times recorded on corrected speedometer. **NA:** Not Available at press time.

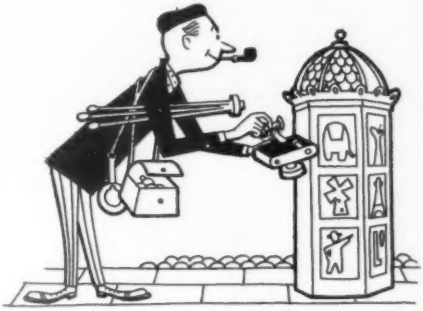
FOLDING WALK for soggy ground on campsites, muddy riverside mooring places or the like. Ted Robertson, Cleveland, Ohio.

ELECTRIC STRETCHCORD for lamps and other appliances—to eliminate hunting for extensions. Randy Schnarr, Kitchener, Ont.

CAN TOSSER, hand-operated, to throw up the omnipresent empty beer or pop can as a target. James A. Mayer, Marengo, Iowa.

INVENTIONS WANTED!

Is there a gadget you think should be invented? If so, send its description on a postcard to Inventions Wanted Editor, MECHANIX ILLUSTRATED, 67 West 44th St., New York 36, N. Y. Each one printed will be awarded $5. Entries not selected cannot be acknowledged or returned.



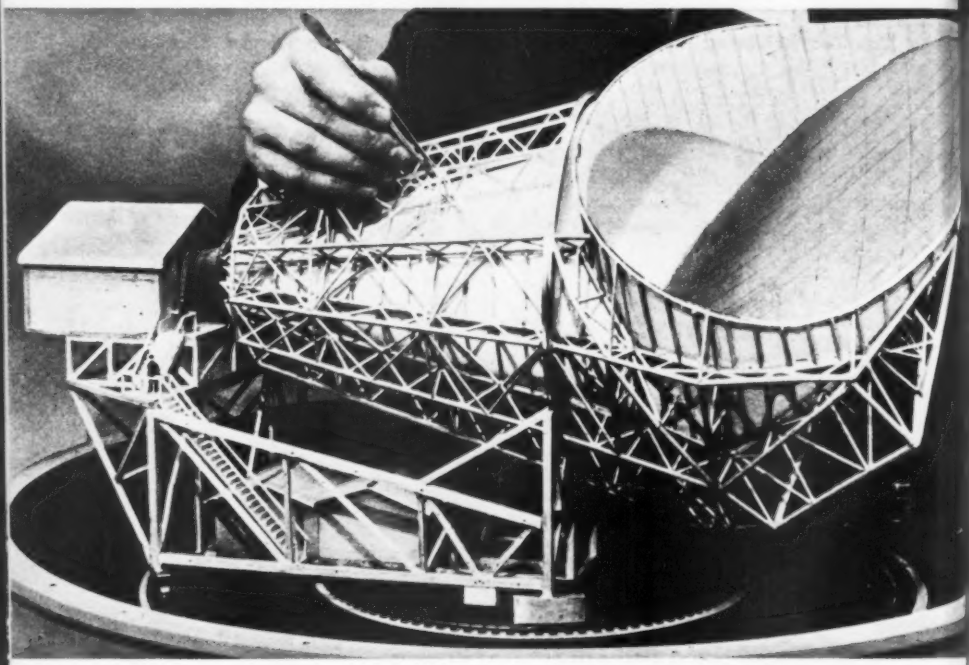
STICKY-END FILM so that photographers won't have to fumble around threading it into the bobbin. Phillip Case, Tulsa, Okla.

LUMINOUS CLOTHESPINS—for Mom, taking in a late wash, or Pop, sneaking in the back entrance. Harry Swank, Lebanon, Pa.

BY ALEXANDER WILEY,
U. S. Senator from Wisconsin

"LET'S SHOW THE WORLD THE TRUTH!"

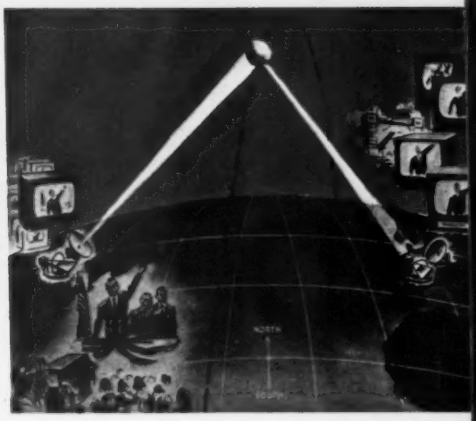
TV satellites could carry America's message to the world.



MODEL of huge antenna that will be built near Rumford, Me., to beam signals to satellite.

CDR. ALAN SHEPARD'S space flight was not only an important technical success for the astronaut and his associates at Cape Canaveral but it was a profound propaganda success for the U. S. as well. Films of the exploit, shown all over the world, had a tremendous effect—in spite of the fact that the earlier Russian exploit of putting a man in orbit around the earth and bringing him back safely was a more advanced achievement. There is a simple explanation—people who had only read about the

SATELLITE'S hf microwave tube can amplify radio signals as much as 10,000 times.



EARTH signals beamed at satellite would be relayed to receivers across Atlantic.

Russian in space were able *to see actual pictures* of the American. There is a lesson for us in this experience with overseas audiences. The truth presents a good picture and it will work for us—if we get the picture to the people who need to see it.

In the past we have used radio, books, exchange students and artists. These have had some effect but the effect of TV programs showing the great events and the ordinary life of citizens in a democracy would be infinitely more powerful. And now there has appeared a new means of beaming television abroad directly from the U. S.—electronic relays borne by satellites in outer space.

Within a year the National Aviation and Space Administration (NASA) will put into orbit a satellite built by the American Telephone and Telegraph Co. This 175-pound-sphere will contain a relay station that will provide experimental transmission of television, telephone calls and other types of communication between the U. S. and Europe. Microwave signals beamed from powerful transmitter-receivers at the Bell Laboratories space station at Rumford, Maine, will be picked up by the satellite's antennas. These signals will be amplified within the satellite, then relayed to waiting antennas in West Germany, England and France. Traveling in polar orbit at an altitude of about 2,200 miles, this first test satellite will transmit to Europe for 35 minutes three or four times every day. It will operate much as conventional microwave relays do. They carry the television picture across America. The satellite relay will carry the picture across the Atlantic.

Sixty per cent of the satellite's surface will be covered with glass-coated solar cells. These will convert the sun's rays into electrical power that will keep the satellite "live" up to ten years. The second satellite in the A.T.&T. program will follow shortly after the first and extend the time-length of transmission. Then a twin transmitter-receiver at Rumford will automatically switch signals from the first satellite moving out of "view" to the second as it comes in.

The full A.T.&T. satellite program has plans for one, two, six, then 30 to 50 satellites for complete 24-hour commercial service within three to four years. The estimated cost of $170,000,000 will be for the full network. A.T.&T. has assumed the cost of this project, including the cost of the launchings. The taxpayer will bear none of the burden. Communications experts believe the system will [*Continued on page* 143]

OUTDOORS
with
W. Scott Duncan

HOW TO BUY A DEER RIFLE

ACCORDING to reliable estimates, several hundred thousand novices will be faced with the problem of buying their first deer rifle this season. Any old-timer will tell you that getting a rifle suited to you and your hunting is more of a task than the beginner can realize. You don't, for example, just walk into the local gun shop and ask the clerk to show you a deer rifle, then buy what he recommends. If you do, you have no one but yourself to blame if you come out with a gun more suited to either woodchuck or moose shooting than for deer in the country where you will hunt. Neither can you depend on the suggestions of well-meaning friends. Let's face it—there is no more controversial subject than what constitutes a good deer rifle. Your friend may have started with an unsuitable rifle but struggled grimly with it for years till he overcame the handicap. Believing he has the best deer rifle, he suggests you buy one like it. Another friend may be trying to make one rifle do for all big game and varmint shooting as well, so argues strongly in favor of the makeshift deer rifle he owns. A third reason for all of this confusion is the fact that a perfect deer rifle in one area may be entirely unsuited for deer in another.

What should you look for in a deer rifle? Before you can answer this intelligently, you must decide where you will do most of your deer hunting. This, more than anything else, will decide the rifle you should buy. In some areas a 70-yard shot is a very long one, while in other regions a 140- or even 200-yard shot is a very short one. In some places deer are small, running to no more than 50 pounds dressed, while in others they are large, going as heavy as 300-odd pounds dressed. Some country is as flat as a skating rink, some is gently rolling, some as mountainous as the Alps. In some states you'll find several hundred hunters to the square mile while in other places no more than one or two to the 100 square miles. Each of these conditions in- [*Continued on page* 144]

PUZZLE: Find the deer. But before you find it, make certain you've got the right rifle.

IT'S NEW!

PIGGYBACK rocket propels Harold M. Graham, an engineer with Bell Aerosystems Co. of Buffalo, over a fire truck. Rocket belt uses a twin-jet hydrogen peroxide propulsion system to lift a man 30 feet in the air and propel him horizontal distances up to 360 feet at about 20 mph. Bell Co. designed rocket for the U. S. Army.

CONTINUED . . .

CYCLING'S FUN in rain or sun with this novel umbrella-holding accessory developed in Italy.

HIGH handlebars keep this young Stockholm cyclist tall in the saddle. Bike has all the accessories, too—oops, no umbrella!

STEEL WIRES hold a 1½-ton Land Rover as it crosses a gap by means of special traction rims bolted onto wheels.

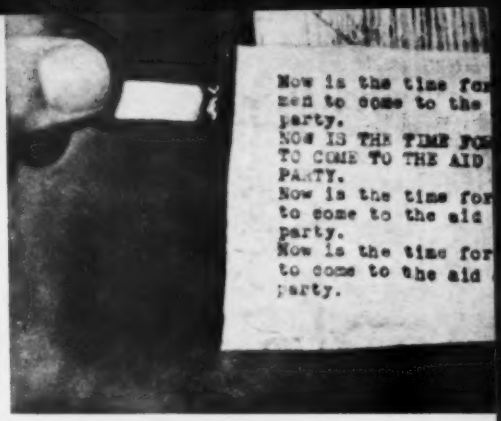
DUCK DECOYS are the real McCoy—dead ducks restored to lifelikeness by taxidermist Hubert Heberer of Okawville, Ill. A paraffin undercoat keeps quackless lures afloat.

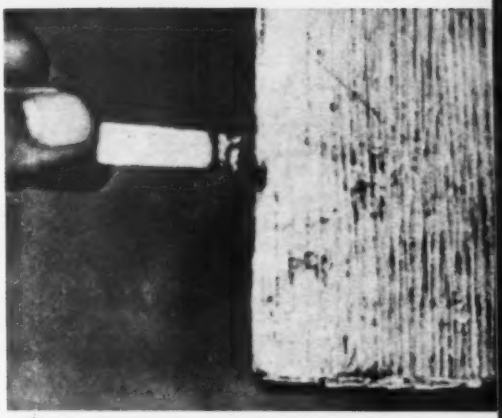
"BLUE WATER" guided missile (for use against ground targets) in firing position on three-ton truck which acts as launcher and transporter. English Electric makes it.

WIRELESS translation system is a four-channel receiver for use at conferences. It will enable foreign delegates to listen to translations in their native language.

HOMEMADE delta-wing craft is the 130-mph creation of Marion E. Baker, a mechanic. The plane is 13 feet long, has an 18-foot wingspan, is powered by an 85-hp engine.

DOODLER sunglasses have a ball-point pen in each temple piece, can still be worn if pens are removed. Emma & Jed's Country Store, Dept. 110, Hillside, N. J. $1.98 pr.





SPIES should go for this "explosive" paper (nitro-cellulose). Touched by a lighted cigarette it bursts into flame instantly, disappearing without a trace of telltale ash.

RESTORING THE NAVY'S OLDEST SHIP

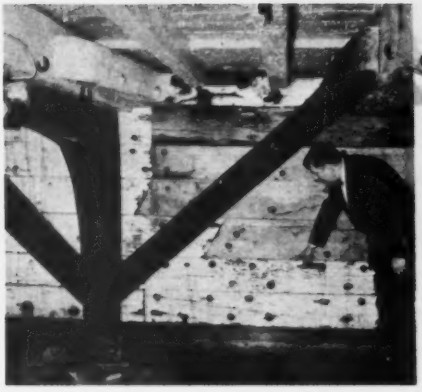
CONSTELLATION in her berth at Baltimore, the port where she was launched in 1797. At right is a tintype of the frigate under full sail about 1860.

THE frigate Constellation, oldest ship of the U. S. Navy, is back in Baltimore. She's in bad shape but ghostly glories lurk among her rotting timbers.

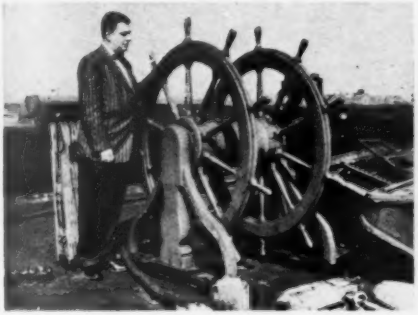
First it was victories against the French, then beating off a British invasion in the Chesapeake, then smashing the Tripolitan pirates. In 1843 she saved the Emperor Kamehameha of Hawaii from the British, won us a future state. She smashed the African slave trade, later took generations of midshipmen on summer cruises. She was flagship of the Atlantic Fleet in World War II, the service home of Admirals King and Ingersoll. Now she needs money to stay alive. Your dollar, sent to Constellation, Baltimore 2, Md., will earn you a copper medal made of one of her original spikes and the lifetime right to board her free. •

PROW restoration is going forward cautiously to keep the old woodcarving intact.

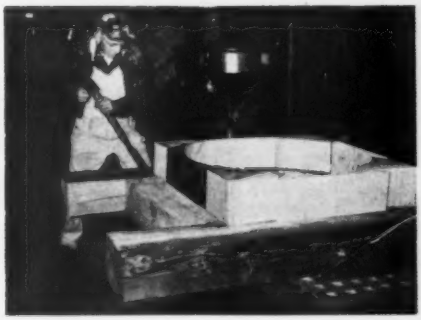
HULL is being checked carefully, rotten timbers removed. Note the heavy planking.



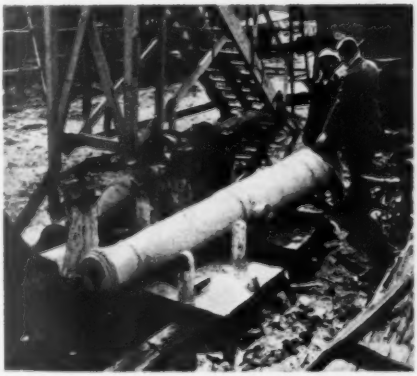
ENEMY BALL is still to be found in the sides of the 164-year-old fighting ship.



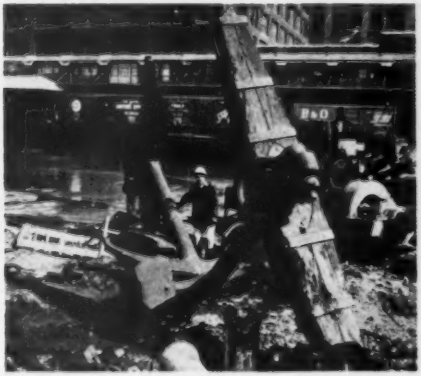
HELM is of the old two-wheel style. Two men were needed to hold it in heavy weather.



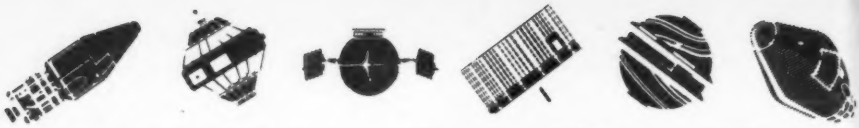
MAST WELLS are being rebuilt of massive new timbers to step the huge wooden masts.



CANNON will be replaced aboard Constellation when present restoration is complete.



ANCHORS: manpower—fed on salt meat and hardtack—weighed these giant hooks.



Test Your Satellite IQ

By James R. Spencer

KNOW how many objects had been put into orbit by March 31, 1961? Was it 30—40—50? Hard as it is to believe, 100 objects had been orbited and 49 of them were still up there on March 31!

How much do you know about the made-in-U.S. satellites we've sent aloft? Here's your chance to test your Satellite IQ. Just circle the correct names. Answers will be found at the end of this article. Good luck!

1. On January 31, 1958, the Free World's first satellite was placed in orbit. This satellite is credited with the discovery of the Van Allen radiation belt around the earth. *Vanguard I. Discoverer I. Explorer I. Pioneer I.*

2. Launched March 17, 1958, this satellite's faithful radio, the first to be powered by solar energy, is still transmitting information. Through careful observations of this satellite, scientists discovered that the earth is pear-shaped and not perfectly round. *Transit I-B. Vanguard I. Explorer III. Vanguard III.*

3. During the late afternoon hours of December 18, 1958, America's talking satellite was launched. Two hours after launch the first human voice, President Eisenhower's, was broadcast from an earth satellite. *Echo I. Midas II. Explorer VI. Score.*

4. Rising from the coastal hills of California, the first earth satellite to be put in a polar orbit was launched from Vandenberg Air Force Base on February 28, 1959. This satellite also had the dubious distinction of being the first man-made object lost in space. *Discoverer I. Explorer II. Tiros I. Midas II.*

5. This satellite took the first complete television picture of the earth's cloud cover and relayed it back to scientists on the ground. It was launched from Cape Canaveral on August 7, 1959. *Tiros I. Courier I-B. Vanguard III. Explorer VI.*

6. This satellite gave meteorologists an unprecedented opportunity to study the earth's cloud cover and relate it to our weather. During its operating lifetime after being launched on April 1, 1960, it transmitted 22,952 pictures, including the first photograph of a tornado in the making. *Tiros I. Courier I-B. Vanguard III. Explorer VI.*

7. A major advancement in the realm of space satellites occurred on June 22, 1960 with the launching of two satellites at once. The satellite that rode piggyback was the NRL Radiation Satellite, the carrier satellite was the: *Pioneer V. Courier I-B. Transit II-A. Midas II.*

8. On August 11, 1960, just 27 hours after launch, this satellite ejected a capsule which became the first man-made object recovered from orbit. *Discoverer XII. Discoverer XIII. Discoverer XIV. Discoverer XV.*

9. Rising into the dawn sky, August 12, 1960, this satellite, America's largest, became the first balloon injected into orbit. *Tiros I. Midas I. Transit I-B. Echo I.*

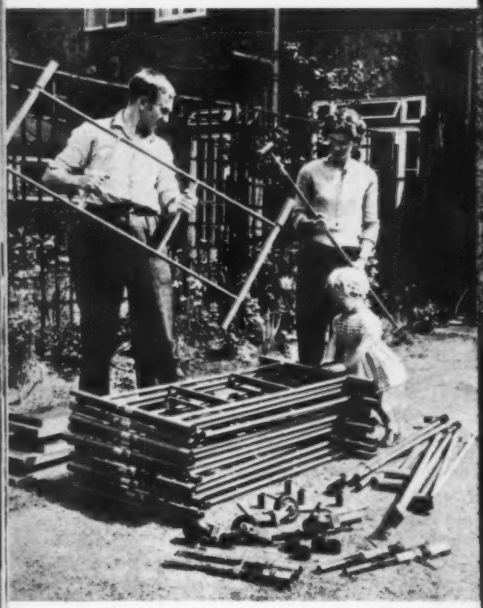
10. Almost completely covered with solar batteries, this satellite roared into orbit during the afternoon of October 4, 1960 and [*Continued on page* 142]

mimi

NEITHER rain nor sleet nor snow can stop our MIMI from the swift completion of her appointed rounds. Why not? Because MIMI is wearing her new "Rain-Zip" coverall, a one-piece, zip-on suit that gives protection against the elements. "Rain-Zip" is heavy-duty vinyl, unaffected by heat or cold. Roomy and action-free, it folds into a small case for carrying. It's fine for outdoor sports and outdoor jobs—as MIMI proves by posing as a gas station attendant. And why is she wearing high heels? Why, to keep her tootsies out of the grease, man! The "Rain-Zip" is sold by Double Jay Mfg. Co., 332 W. 9th St., Kansas City, Mo. The retail price is $5.95.

BUILD-YOUR-OWN SCAFFOLD

A BRITISH firm is now producing a lightweight tubular-steel working platform for home owners who like to make their own house repairs. Unassembled, the scaffold's interlocking pieces take up little more space than a toy chest. No tools are required to assemble the rig, which can be done in a matter of minutes. The bottom unit is assembled first; then—if greater height is required—it is mounted by the worker who proceeds to fit the upper units in place. The scaffold can be built to a maximum height of 20 feet. Its roomy working platform area accommodates enough tools, paint cans, materials, etc. to eliminate the necessity for making frequent trips to the ground for more supplies. •



EASY-STAGE scaffold assembles in minutes, no tools needed; fully assembled height is 20 feet. Casters permit stage to be rolled easily from place to place.

SELF-LOCKING wheels at corners of platform slip into socketed fittings. They're unlocked when rig is ready to be moved.

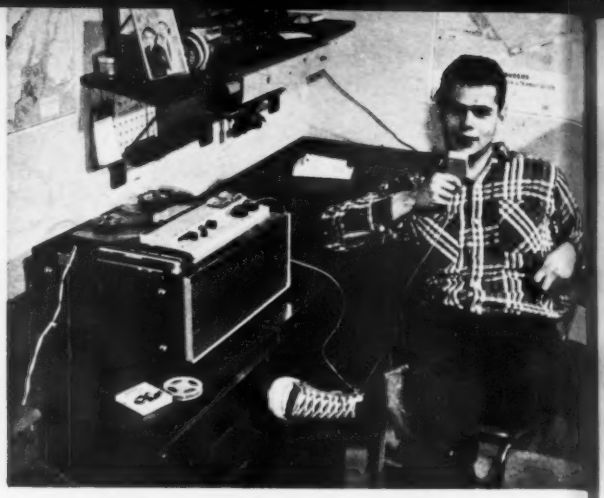
JACK at each corner leg of stage is used to adapt the structure to uneven surfaces.

ONE SECTION of the stage can serve as a tent frame (canvas available as an extra).

SCAFFOLD also assembles as a narrower staging for use in areas of limited space.

BRIGHT IDEA AWARD
MECHANIX ILLUSTRATED

LIVING LETTERS



15-MINUTE Living Letter is taped via Knight recorder . . .

. . . handy mailing package is addressed . . .

. . . then dropped into slot of mailbox . . .

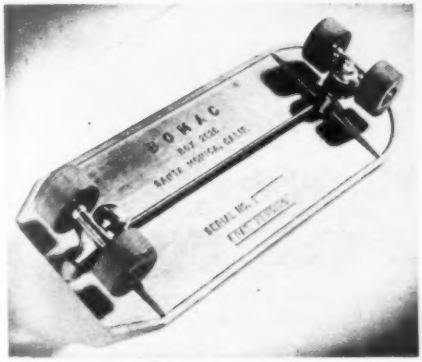
TODAY'S mailman carries voices in his mailbag! They're "Living Letters"—a product of Minnesota Mining & Manufacturing Co. The "letters" are reels of MMM's Scotch brand magnetic tape and they come in handy boxes all ready for addressing and mailing. Now you can send your own voice in your letters to family and friends—complete with grunts, sighs, sobs and moans. Living Letters are available in 15, 23 and 30-minute reels, for 70 cents, $1.00 and $1.60. They're also great as a sound track for home movies. •

. . . and mailman delivers recorded message.

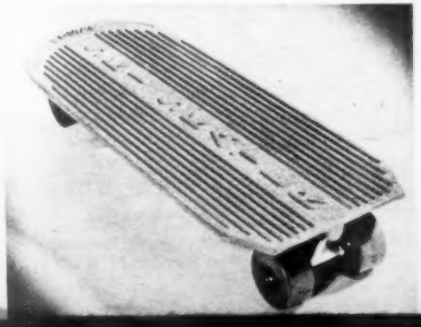
WIN $50

MI will award $50 each month to the first person who tells us of a new and useful gadget that is patented and in production. Manufacturers are also eligible for this award. Pictures and a description should be sent to Bright Ideas Editor, Mechanix Illustrated, 67 West 44th Street, New York 36, N. Y.

SCOOTING downhill on their Ski-Skaters, these brave souls balance like surfboard riders.



SKI-SKATER is simplicity itself—a flat platform with front and rear wheels. You control the direction by shifting weight.



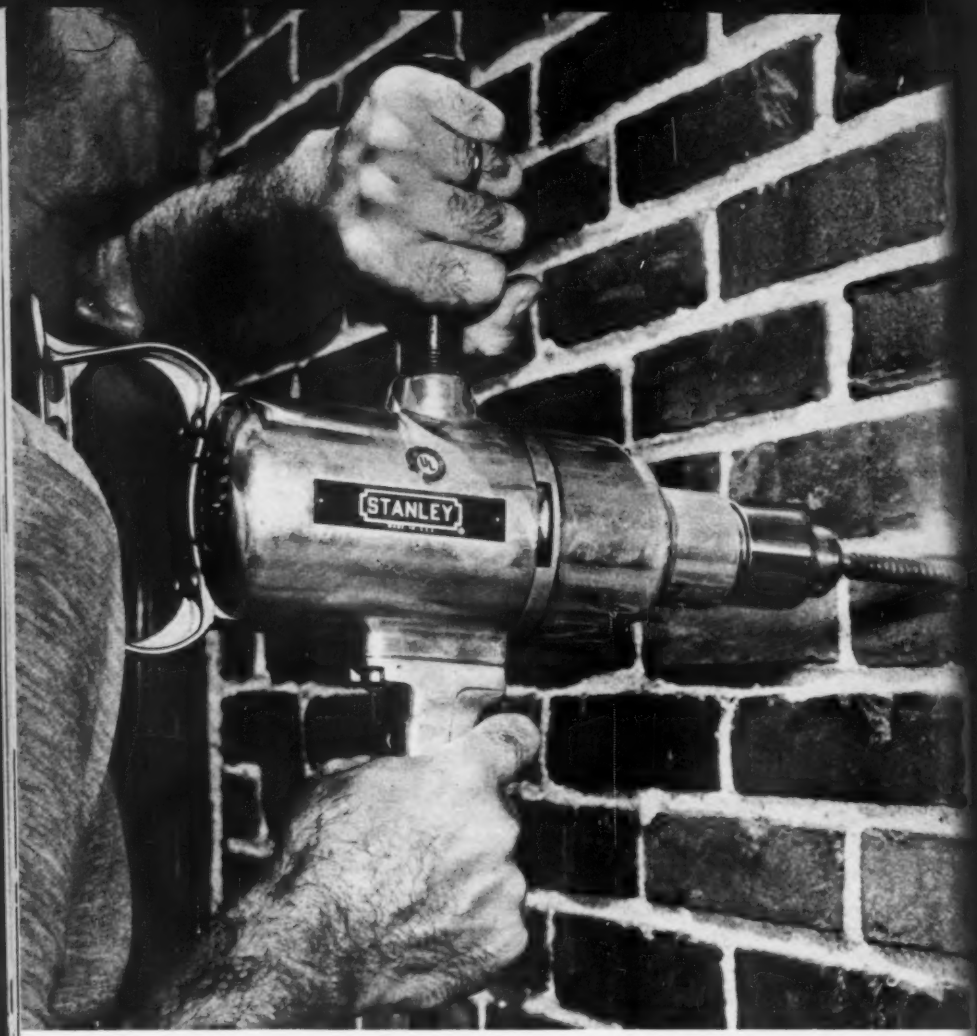
Newest Sport-

SKATE-BOARDING!

A NEW fad is gathering momentum in Los Angeles and seems calculated to make the country forget yo-yos and Hula Hoops. It's called "skate-boarding" and is usually done on the Ski-Skater, a small metal platform fitted fore and aft with wheels similar to those on roller skates.

You just find yourself a paved hill, climb to the top, step on your Ski-Skater—and away you go! Naturally, speed depends on how steep the slope is. You steer the Ski-Skater by shifting your weight from side to side and from back to front. Movements similar to skiing and to surfboard riding make skate-boarding a fine conditioner for these two sports.

The Ski-Skater is made by Bowlus Engineering Co., Pacoima, Calif. The price is $10.95. Take a tip from us—start out on a gentle slope! •



TOUGHEST MASONRY material to "hole" is brick. Here operator is using a slow-speed half-inch electric drill with carbide-tipped drill point.

MASONRY FASTENERS

HOW to hang an object on a wall seems to stump a lot of home owners, especially if the wall is constructed of material other than wood. But no problem exists if one is acquainted with the many types of fasteners available.

Just which fastener to use depends not only upon the weight but the kind of load. A thin object which is held close to the wall requires less support than a bulky one. This is because a bulky object exerts more leverage on an anchor at the top. In some cases, it is even necessary to use metal shelf brackets at the bottom.

When a house is being built, such things as tapped inserts, clips, ties or

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MASONRY FASTENERS	SIZE	INSTALLATION
CUT NAILS (HARDENED STEEL) TREMONT NAIL CO.	LENGTH 1¼" TO 3"	USE 1½" OR 1¾" ON 1 AND 2 STRAPPING FOR ¾" AND 1" PENETRATION OF MASONRY
CONCRETE STUB NAILS (HARDENED STEEL) INDEPENDENT NAIL AND PACKING CO.	9 AND 16 GAUGE LENGTH ½" TO 3"	ALWAYS DRIVE THROUGH WOOD FIRST, THEN INTO MASONRY STRIKE SQUARE AND HARD
MASONRY NAILS (HARDENED STEEL, KNURLED) INDEPENDENT NAIL AND PACKING CO.	REGULAR ½" TO 4" LONG HEAVY DUTY 1" TO 3½" LONG	DRIVE INTO SOFT MASONRY, WHEN HARD DRILL HOLE 2/3 NAIL LENGTH. PRE-DRILL DRY WOOD, WHEN DRIVING HEAVY DUTY NAILS TO PREVENT SPLITTING
CONDUIT STAPLES HARDENED STEEL, KNURLED INDEPENDENT NAIL AND PACKING CO.	IN 1¾" TO 3½" LENGTHS FOR ½", ¾" AND 1" CONDUIT TUBING AND FLEX TUBE	QUICKER AND EASIER TO USE THAN TWO-PIECE FASTENERS. KNURLING (RIDGES) GIVES GREATER HOLDING POWER

MASONRY FASTENER	SIZE	INSTALLATION
SHURE-SET (STEEL) RAMSET FASTENING SYSTEM	DRIVE PINS LENGTH ½" TO 3" THREADED STUDS ¾" SHANK THREADS ⅜" & ⅝" LONG 1¼" SHANK THREADS ⅜" TO 2" LONG	USING MAKERS SPECIAL TOOL DRIVE THRU WOOD AND THIN METAL INTO HARD MASONRY. WASHER MOVES UP INSURING STRAIGHT PENETRATION
ONE PIECE EXPANSION BOLTS (STEEL) THE RAWL PLUG CO.	DIAMETER 3/16" TO ⅝" LENGTH 1" TO 4"	DRILL HOLE OF BOLT'S DIA. DRIVE THRU FIXTURE INTO MASONRY. USE IN HARD MASONRY ONLY
BRUSH HAMMER DRIVE NAIL ANCHORS (ALUMINUM ALLOY) SUPER GRIP ANCHOR BOLT CO.	DIAMETER 3/16" AND ¼" LENGTH ⅞" TO 1⅛"	DRILL HOLE TO MATCH SHIELD'S DIA. INSERT SHIELD AND DRIVE NAIL HOME WITH HAMMER
NAIL EXPANSION SHIELDS DIAMOND (DHD-ALUMINUM) U.S.E. (TRIWAY-STEEL) U.S.E. EXP. BOLT CO. OR DIAMOND EXP. CO.	DIAMETER 3/16" TO ½" LENGTH ⅞" TO 3½"	AS ABOVE BUT FOR HEAVIER LOADS. SUPPORTS 500 LBS. IN SOLID MASONRY
SPIRAL DRIVE NAIL ANCHORS (DIE CAST ALLOY) ARRO EXPANSION BOLT CO.	DIAMETER 3/16" TO ½" LENGTH ⅞" TO 3½"	AS ABOVE. SPIRAL PREVENTS LOOSENING FROM VIBRATION

wooden blocks may be installed in the concrete or masonry. But since these become a permanent part of the wall, careful planning must go into their location. If the walls are completed but still fairly new, hardened steel masonry nails may be driven in to hold various objects. But, if the concrete has aged and hardened thoroughly, some other method must be used.

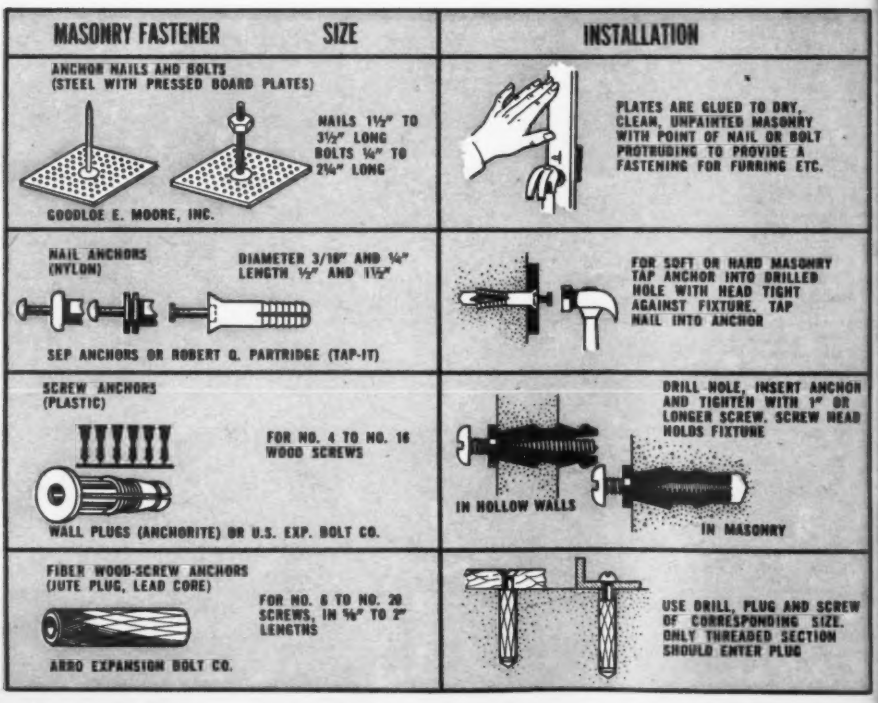
There are several ways of attaching holders to a wall without drilling holes or penetrating the surface. An adhesive anchor is one method. It is usually a perforated metal plate to which a nail is welded or press fitted. Cement, furnished with the anchor, is liberally applied and the anchor is then pressed on with a twisting motion so that the nail projects. This type of anchor was designed primarily for attaching furring strips but it is also useful for hanging objects on a glass or ceramic surface.

Another adhesive hanger consists of a hook mounted on a piece of gummed linen tape. This is safe for holding very light loads such as small pictures or plate racks but it will hold heavier loads if both surfaces are first coated with contact cement.

The most tenacious of all adhesives is epoxy cement. Claims for its holding power are not exaggerated but it should not be used over paint or a crumbling surface because the anchor would then hold no more than *that* surface.

Some fasteners may be used in wood, plaster or composition walls without first drilling a hole. One is the familiar hook-type picture hanger. Tacks, push pins, screws or nails also may be used but they are not as good. If a nail must be used, it should be driven at a downward angle for greater holding power.

Most other installations require drilling a hole. In hollow walls or doors, care must be taken not to break away the inner surface. A regular twist drill may be used in wood or metal. In plaster, marble, slate or terra cotta, this tool will become dull quickly. To overcome this somewhat, the drill point should first be heated cherry red, then quenched in cold water and [*Continued on page* 111]



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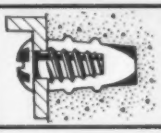
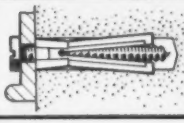
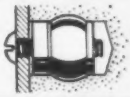
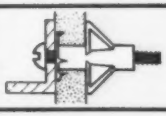
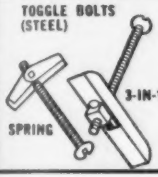
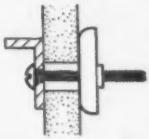
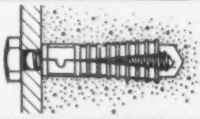
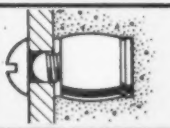
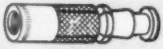
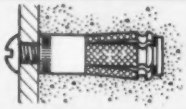
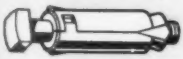
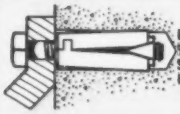
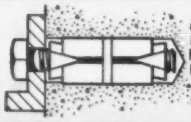
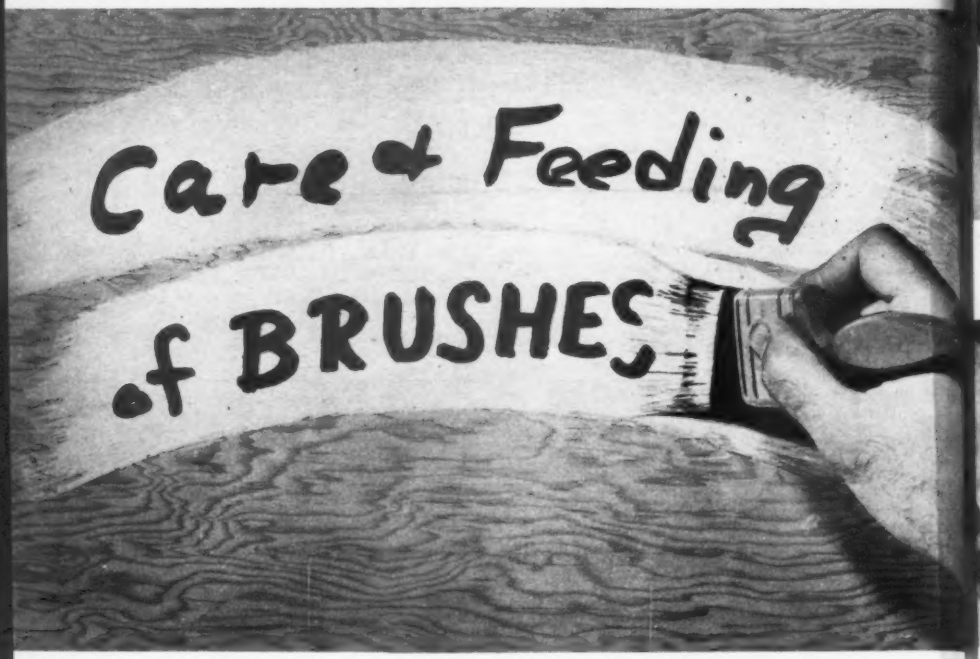
MASONRY FASTENER	SIZE	INSTALLATION
MAXIMO SCREW ANCHORS (STEEL) SUPER GRIP ANCHOR BOLT CO.	FOR NO. 5 TO NO. 18 SCREWS	 FOR TWIN FAST SCREWS OR STRAIGHT SHANKED, GIMLET POINTED SCREWS. DRILL HOLE, DRIVE IN ANCHOR, TURN SCREW INTO PLACE
WOOD SCREW ANCHOR (LEAD) DIAMOND, ARRO (5000), U.S.E.	FOR NO. 6 TO NO. 24 SCREWS LENGTHS ¾" TO 2"	 SHORT ANCHORS FOR SOLID MASONRY, LONG FOR POROUS. INSERT INTO DRILLED HOLE OF SAME DIAMETER. SCREW EXPANDS ANCHOR
NEO-GRIP ANCHOR FOR MACHINE BOLTS, SCREWS (ALUMINUM WITH NEOPRENE SLEEVE) STAR EXPANSION	FOR 6/32, 10/24, ¼/20 BOLT SIZES	 USE SPECIAL FIXTURE TO TIGHTEN NEO-GRIP IN HOLE DRILLED FOR TIGHT FIT. ESPECIALLY SUITABLE FOR BRITTLE WALLS, TILE AND GLASS
HOLLOW WALL ANCHORS (STEEL) DIAMOND (WING-DING), MOLLY	FOR ¼" TO 1¼" WALL THICKNESS	 INSERT SCREW INTO DRILLED HOLE, TAP TO SET GRIPPER TEETH, TIGHTEN TO EXPAND ANCHOR THEN REMOVE SCREW AND REINSERT THRU FIXTURE
TOGGLE BOLTS (STEEL) 	DIAMETER ⅛" TO ½" LENGTH 2" TO 10"	 MAKE HOLE LARGE ENOUGH TO ALLOW PASSAGE OF WING IN HORIZONTAL POSITION. INSERT BOLT THRU FIXTURE ONTO WING PUSH WING THRU AND TIGHTEN

MASONRY FASTENER	SIZE	INSTALLATION
LAG SCREW EXPANSION SHIELDS (ZINC OR MALLEABLE IRON) ARRO (1000), DIAMOND (P), U.S.E. (S-N-S).	DIAMETER ¼" TO 1¼" LENGTH 1" TO 8"	 FOR HEAVY LOADS. USE SHORT SHIELDS IN HARD MASONRY, LONG IN POROUS. LAG SCREW EXPANDS ANCHOR IN HOLE OF SAME DIAMETER
MACHINE SCREW CALKING ANCHORS (STEEL WITH LEAD ALLOY SLEEVE) ARRO (4000), DIAMOND (RED SEAL)	FOR SCREWS OR BOLTS 6-32 TO 1"-8 DIA.	 FOR HEAVY LOADS SET ANCHOR IN HOLE OF SAME DIAMETER. BY HAMMERING SPECIAL TOOL LEAD IS CALKED. INSERT SCREW
MACHINE SCREW DRILLSET ANCHORS (STEEL ALLOY)  EXPANDER PLUG U.S. EXPANSION BOLT CO.	FOR SCREWS OR BOLTS ¼" TO ⅝" DIA.	 INSERT ANCHOR INTO HOLE OF SAME DIAMETER. HAMMER BLOWS FORCE INTO EXPANDED POSITION GIVING GREAT HOLDING POWER
MACHINE BOLT SHIELDS (DIE CAST ZINC ALLOY)  ARRO (3500), U.S.E. (TY TON), DIAMOND (KEYSTONE)	SHORT OR LONG SHIELDS FOR BOLTS ¼" TO 1" DIA.	 INSERT IN SNUG-FITTING HOLE. SCREW BOLT THRU FIXTURE INTO SHIELD. TIGHTENING DRAWS WEDGE UP CAUSING EXPANSION
DOUBLE EXPANSION MACHINE BOLT SHIELDS (ZINC ALLOY OR MALLEABLE IRON) ARRO (2500), U.S.E. (DOUBLE), DIAMOND (K. DOUBLE)	FOR BOLTS ¼" TO 1¼" DIA.	 AS ABOVE. SHIELD EXPANDS AT BOTH ENDS PROVIDING MAXIMUM HOLDING POWER. FOR VERY HARD MASONRY



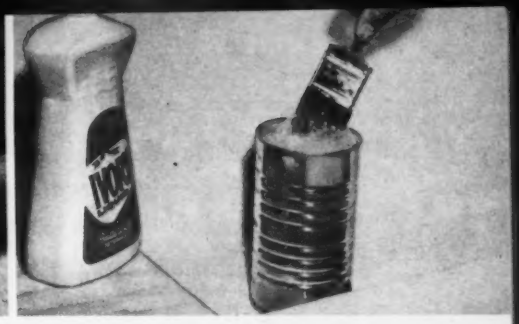
A good paint brush is a good investment—and here is how to take care of your investment.

CHECK a new brush for broken hairs. Clip them off close to heel of handle.

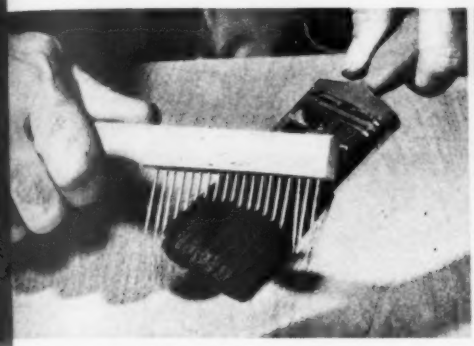
DIP brush about half-way into can of paint. Wipe off excess so paint will not fill up heel.

BEFORE cleaning brush, work out the excess paint on a sheet of newspaper.

CLEAN with two solvents. First removes most paint. Second does actual cleaning.



AFTER brush has been cleaned in solvents, wash in warm, mild detergent, then rinse.



WAIT till brush is dry, then comb it as shown so that the bristles will lie flat.

STAT can be used to coat brushes between jobs. It prevents the paint from hardening.

WHEN a job is interrupted for a few hours or overnight, wrap brush in foil.

HARDENED brushes can be salvaged by boiling them in 15% solution of trisodium phosphate.

WHEN soaking brushes in solvent, suspend them so that bristles do not touch bottom.

PLASTIC PIPE....

This versatile material can make an expert plumber out of the average handyman!

By David X. Manners and Carl De Groote

THE real meaning has disappeared from the word plumbing—and its mystery. In Latin the word *plumbum* meant lead. Since ancient times, when our ancestors first used that easily worked metal for pipes, our household water supply has come through metal. Putting the right twists and turns into metal piping was such a difficult and complicated business that only those who had been initiated into its mysteries during a long period of training were considered fit to do so. The rites of installation were carried out with much fire and smoke. At the end, there was a ceremony known as "the reckoning."

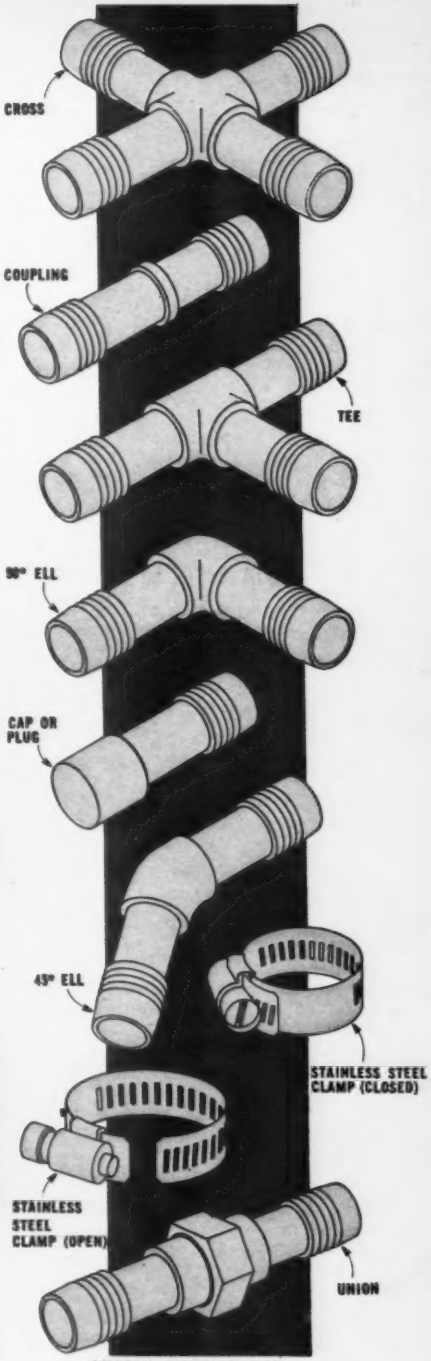
The householder would then offer a large sacrifice in the form of money, to reward the plumber for his labor.

Now, the magic and the metal has been taken out of plumbing by plastic. Gone are the fire and smoke, the cumbersome joints, the vast array of tools. It is now possible to do all house plumbing jobs with plastic and the material is so easy to use that a handyman can install it competently. What's more, it is quicker and cheaper to install than conventional plumbing.

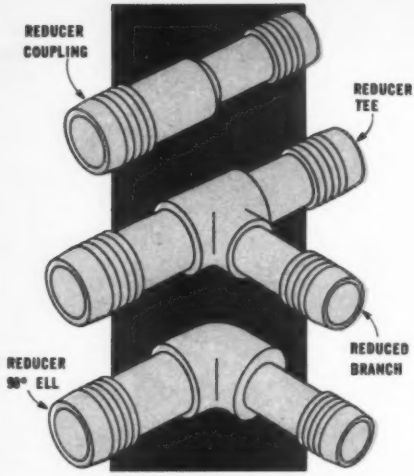
For some time, plastic pipe made from PVC (polyvinyl chloride) has been in use for cold-water lines and for drainage. Now a new plastic, Hi-temp Geon, has been introduced which can be used for hot-water

AFTER making a square cut with ordinary wood saw, smooth the ends with fine emery paper.

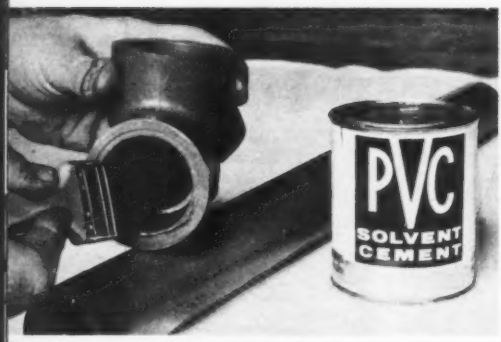
NEXT step in joining is to clean fittings and pipe ends, with cloth dipped in ketone solvent.



SUPPLY FITTINGS FOR FLEXIBLE PLASTIC PIPE AVAILABLE IN PLASTIC OR BRASS



REDUCER SUPPLY FITTINGS FOR FLEXIBLE PLASTIC PIPE AVAILABLE IN PLASTIC OR BRASS

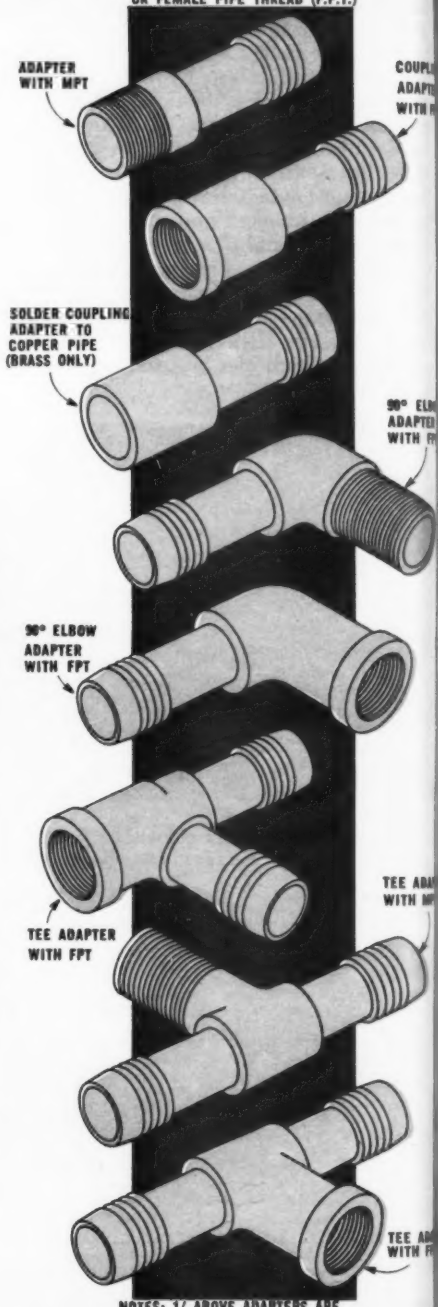


BRUSH all surfaces with cement including shoulder of fitting and butt end of pipe.

INSERT pipe promptly into fitting then give it a 90° turn. Cement dries quickly.

ADAPTER SUPPLY FITTINGS FOR PLASTIC-FLEXIBLE-PIPE

AVAILABLE IN PLASTIC OR BRASS WITH MALE PIPE THREAD (M.P.T.) OR FEMALE PIPE THREAD (F.P.T.)



NOTES: 1/ ABOVE ADAPTERS ARE AVAILABLE AS REDUCER FITTINGS
2/ VENTURY (LONG SHANK) COUPLING ADAPTERS ARE AVAILABLE WITH M.P.T. OR F.P.T.

lines. Geon can stand 200°F without breaking down. So between PVC and Geon there's no longer any home plumbing job which can't be done the plastic way. PVC and Geon, both made from vinyl, weigh only one-sixth as much as copper.

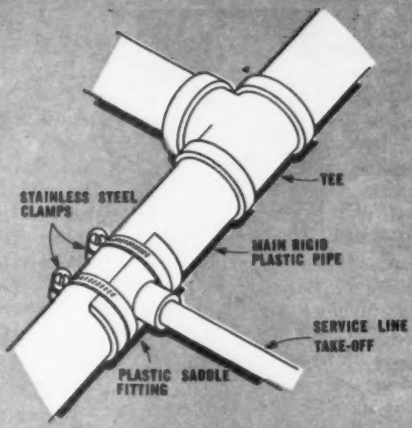
You'll find there are many advantages in switching to plastic. It is far easier to work than metal. It can be assembled at least twice as fast. It can be cut with an ordinary wood saw and is readily bent by heating, minimizing the number of fittings required. Joints are made with a solvent cement that's brushed on. You don't need any of the special wrenches, threaders and soldering gear that metal plumbing jobs require.

In performance, plastic has strong points too. It is a good insulator. Cold-water pipes made of it won't sweat in humid weather. Hot-water pipes hold their heat, even in long runs. Both Hi-temp Geon and PVC have the slick, smooth surface, characteristic of most plastics. This means a minimum of resistance to water flow and a maximum of resistance to clogging. It won't corrode, takes rough handling and never gives off any "pipe taste." The material is non-flammable, unaffected by sunlight or other environmental factors and can be buried in earth or concrete. Most conveniently, it can be joined to other kinds of pipe by means of adapters.

PVC is available at most plumbing supply houses in the one-inch size for about 27 cents per foot. That's less than half the cost of copper, and is cheaper even than the lowest-priced galvanized pipe.

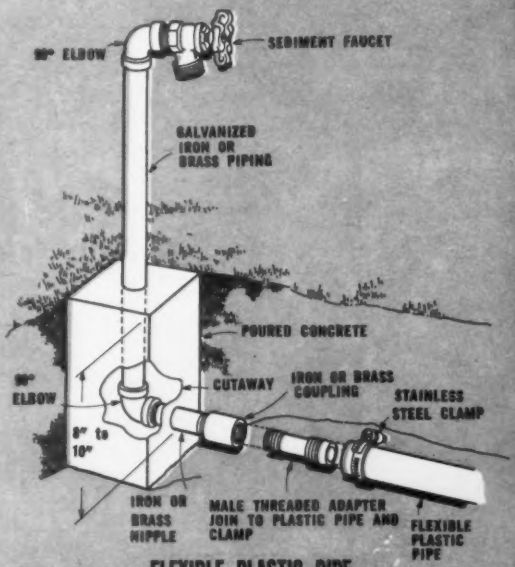
Hi-temp Geon has just gone into production and you can expect its price to be the same as or slightly less than copper until supplies become more plentiful. Then look for the price to drop. Your big savings right now will be on labor. Standard plastic-pipe length is 20 feet. A variety of fittings and valves are available to match the material.

Working this new material is easy.

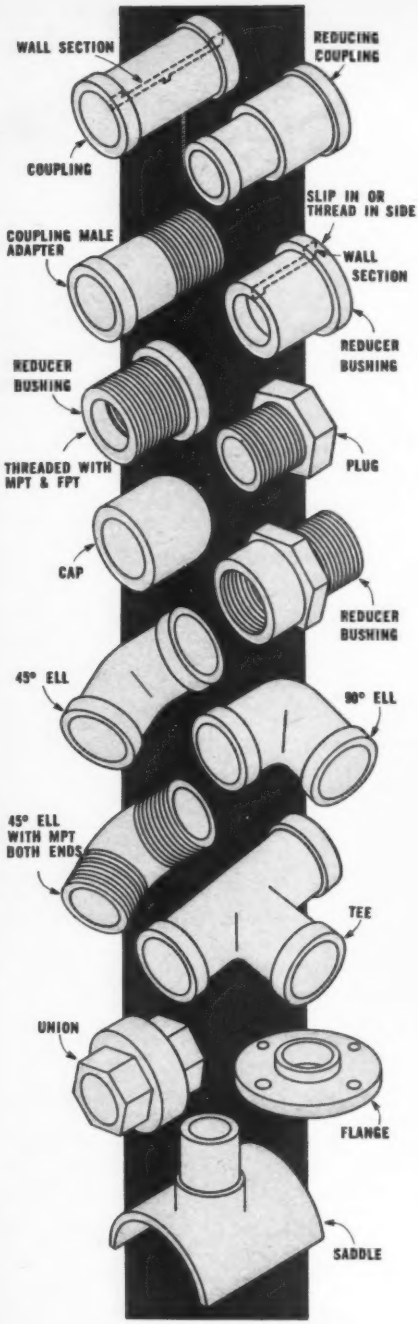


SADDLE FITTING FOR SERVICE LINES TAKE OFF FROM WATER MAINS

A—DRILL HOLE IN MAIN USING BRACE AND BIT
B—MARK OFF AREA SADDLE WILL OCCUPY ON MAIN AND BRUSH WITH SOLVENT. BRUSH SOLVENT ON INSIDE CURVED AREA OF SADDLE
C—LOCATE SADDLE WITH AN INSERT WOODEN GUIDE PLUG OVER HOLE. PRESS SADDLE ON MAIN AND HOLD TIGHTLY WHILE TIGHTENING TWO STAINLESS STEEL CLAMPS.
D—BRUSH SOLVENT ON CONNECTING END OF SERVICE LINE AND CEMENT INTO SADDLE.



FLEXIBLE PLASTIC PIPE CONNECTION TO IRON OR BRASS PIPING.

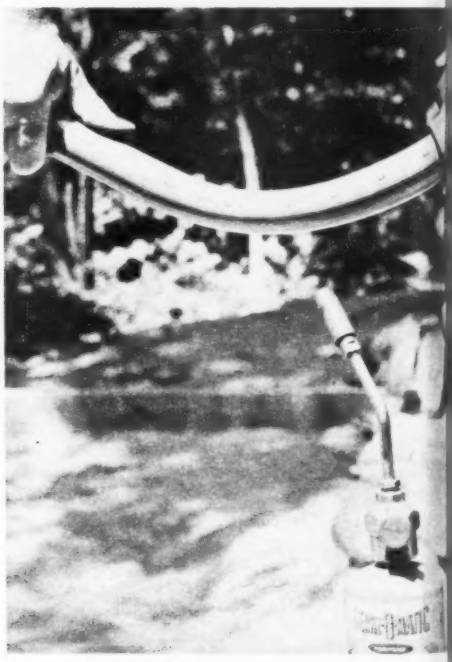


PLASTIC SUPPLY FITTINGS FOR SEMI-RIGID AND RIGID PLASTIC PIPE

In making joints, be sure the pipe ends are square and smooth. A miter box, or similar jig, will help you make square saw cuts. Use emery cloth to smooth the pipe end after sawing. Before cementing, clean both pipe end and fitting socket with a cloth moistened with a ketone solvent, such as acetone or Mek.

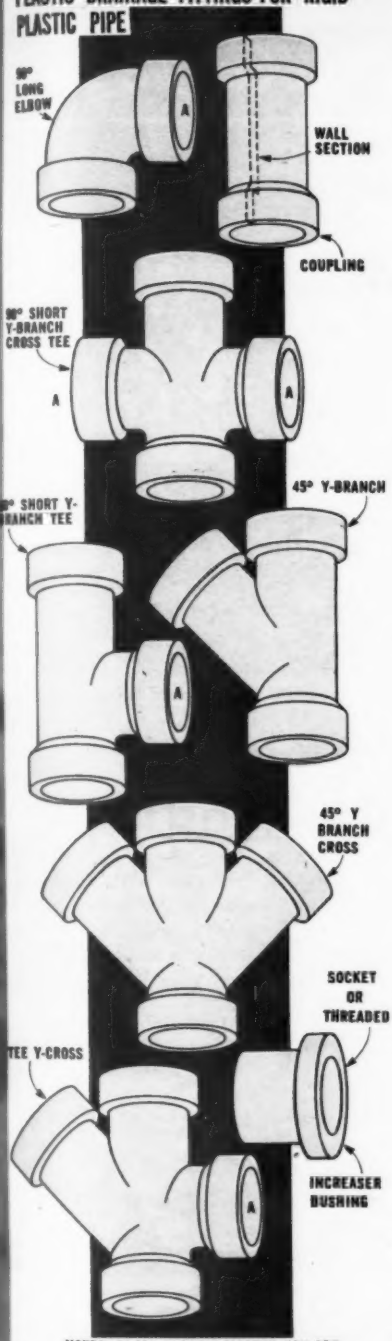
Brush cement generously on both pipe and fitting and don't overlook the butt end of the pipe or the socket bottom on the fitting. The cement dries rapidly. Assemble the joint at once, making sure the pipe end goes all the way to the socket bottom. Immediately give the fitting a quarter-turn to distribute the cement. If you have used enough cement, some will squeeze out around the mouth of the fitting. It helps prevent leaks. If none is squeezed out, take the joint apart at once and apply more cement.

Don't disturb the joint for 30 minutes after assembly. The pipe can take limited water pressure after one hour, but doesn't reach full strength for 24 hours. After that, the joint is stronger than the pipe itself.



HEATING to 250°F permits bending. Cool pipe quickly by plunging it in cold water.

PLASTIC DRAINAGE FITTINGS FOR RIGID-PLASTIC PIPE

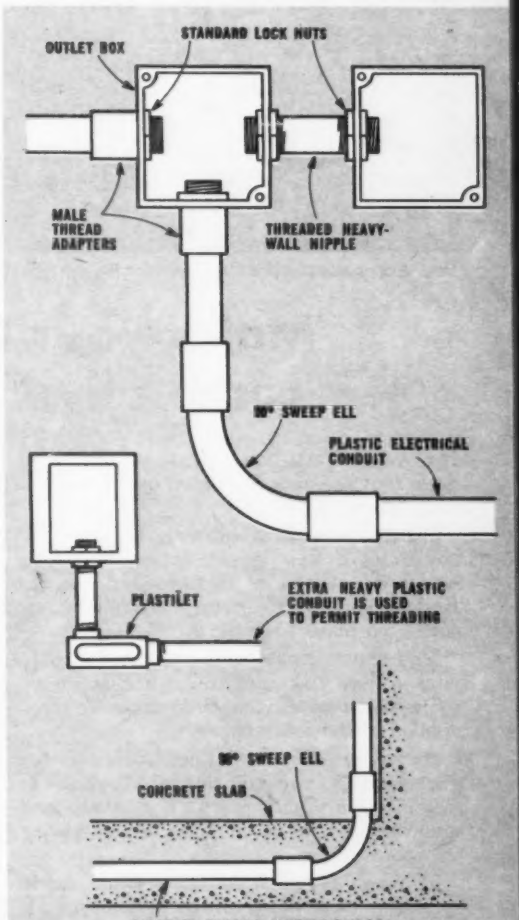


NOTES: 1/ ALL SOCKETS MARKED "A" ARE SLOPED FOR ¼" PER FOOT PITCH UP.

2/ 45° ELBOWS, 90° AND 45° SWEEP ELL, CROSS AND CAP FITTINGS TOGETHER WITH SOCKET TYPE AND THREADED ADAPTERS ARE AVAILABLE.

A temperature of 250°F is needed to soften plastic pipe before bending. A torch will do the job, but don't hold the pipe directly in the flame and be careful not to overheat it. If an oven is convenient, it will do this job well. After bending, cool the pipe quickly with cold water. For sharp bends, prevent kinking by packing the pipe with sand or using a metal spiral inside.

On heating, plastic expands far more than metal, so give pipes freedom to move. If a pipe must be firmly anchored, use an S-bend in the line between the rigidly fixed points to take up any movement. •



RIGID PLASTIC ELECTRICAL CONDUIT

New Ideas in Photography

YOU WON'T BELIEVE IT till you hear it—the rich, clear-as-a-bell sound of the Kodak Sound 8 Projector!

Make your 8mm movies come alive with sound!

Now you can add rich, stirring sound to your 8mm movies—new or old. And you can use your present camera.

All this is made possible by Kodak's discovery of a way to put quality magnetic sound on narrow 8mm film—and by the Kodak Sound 8 Projector, which both records and plays back the sound.

You simply take your processed film to your dealer. Ask him to have a magnetic stripe, such as Kodak Sonotrack Coating, applied to the film edge.

As you project the "striped" film through your Sound 8 Projector, talk into the mike to record voice commentary. For music and sound effects, hook in your record player or tape recorder.

You can play back your new sound movie instantly. To improve any sections of sound, just reverse the film and re-record; erasure of previous sound is automatic.

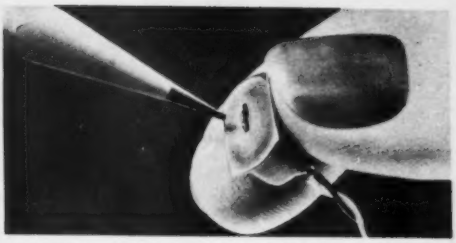
Kodak Sound 8 Projector, with microph and built-in speaker, is less than $350. your dealer for exact retail price. M dealers offer terms as low as 10% down.

RECORD RIGHT ON THE FILM—voices or "live" so effects through mike, music from your record pl or tape recorder. Play back through projec built-in speaker, through your present hi-fi eq ment—or through both!

from Kodak

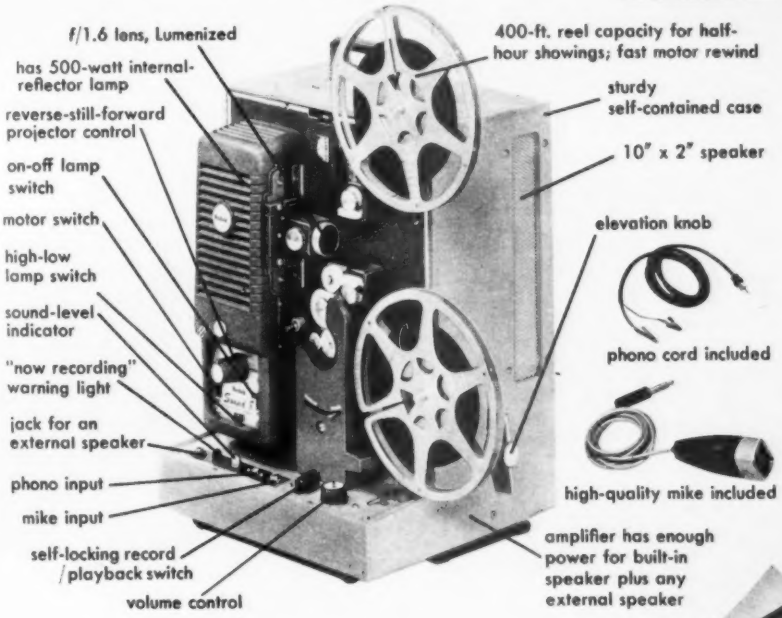
LONG-PLAY (33⅓) RECORD OF BACKGROUND MUSIC and special sound effects comes with your Kodak Sound 8 Projector. These high-fidelity musical selections are adaptable to just about every situation you're likely to capture on film. Thirteen common sound effects are also included.

(Below) **TWO FINE INSTRUMENTS IN ONE:** the Kodak Sound 8 is a top-quality 8mm projector that gives you sharp, clear movies up to 5 feet wide. It also is a fine sound system with frequency response 70 to 7,500 cycles. Projector will never need oiling.



SOUND PICKUP HEAD is only 2/100" wide. It would wear away fast if made of the usual magnetic alloy. Kodak head is made of new, incredibly hard Alfenol alloy, is virtually wearproof. Will record for countless hours without loss in sound quality.

PROFESSIONAL 8mm sound films are now available for sale or rent . . . and many more are coming. The Kodak Sound 8 Projector runs at 24 frames per second for professional films, and at 16 fps for most personal films.



Price is subject to change without notice.

EASTMAN KODAK COMPANY, Rochester 4, N. Y.

Kodak TRADEMARK

Enjoy Walt Disney's "Wonderful World of Color" Sunday evenings, NBC-TV

GARDEN TIPS

AUTUMN is the time you should plant tulips and daffodils if you want early spring flowers, advises Associated Bulb Growers of Holland.

Amchem Products, Inc., Ambler, Pa.

ROOT GROWTH of cuttings is hastened if cut end is dipped in Rootone powder.

BORERS can be killed with a new preparation that is painted over bark around the holes made by these insects. Use brush as shown.

Thomas Enterprises, Tulsa 5, Okla.

SHRUBS AND VINES can be tied to a brick wall by bending a screw eye at right angles and securing with epoxy cement.

GET SET FOR THE FALL AND WINTER JOBS

Set up a Weldwood Fix and Finish Shelf in your workshop

FINISH DOORS with Weldwood Satinlac®. A complete finish—it seals, primes, finishes! Assures a glowing, soft-sheen luster. Brings out the wood's natural beauty without "plate-glass" shine.

MEND A DRAWER with Weldwood Presto-Set® Glue. Quick, clean, dries fast, won't stain. Bonds paper, wood, cloth, china. In handy bellows-action squeeze bottle with spreader top. From 39¢.

EDGE A COFFEE TABLE with Weldwood Flexible Wood-Trim®. Real wood, paper-backed, in handy 8' rolls. Use it to finish off any Plywood project or as decorative trim. Apply with Presto-Set Glue.

Save time and trouble. Keep the Weldwood® adhesives and finishes you'll need this fall and winter on your workshop shelf—and you're ready for almost any job when it arises. For a starter, you might get these products for this year's inside-the-house projects: Weldwood Satinlac, Presto-Set and Plastic Resin Glues, Wood-Trim, Firzite, and Putty Stiks®. You'll find them at your local lumber yard, or paint and hardware stores.

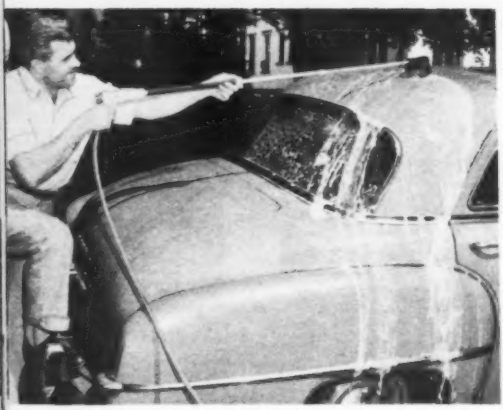
ADHESIVES
WELDWOOD
WOOD FINISHES

Products of United States Plywood

MI's HARDWARE STORE

ADJUSTABLE joist brace snaps into place, made of rust-proofed steel, sells for 57¢.

Curtis Industries, Inc., Cleveland, Ohio



CAR-WASHING wand hooks up to garden hose, has built-in detergent dispenser; $8.95.

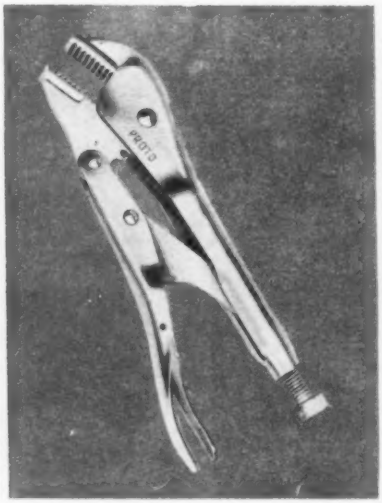
Ozrow Products Co., Inc., Hazel St., Glen Cove, N. Y.

MASONRY patching kit is complete with mix, trowel and box. Six-pound size, $2.

Instant Crete Corp., 1134 E. St. George Ave., Linden, N. J.

TINY tap set has five taps, 0x80, 1x72, 2x56, 3x48, and 4x40. Set includes a chuck.

Moody Machine Products Co., Inc.,
42-46 Dudley St., Providence 5, R. I.



NEW LOCKING plier has a positive acting quick-release feature as part of the handle. The price is $2.98.

Proto Tool Co., 2209 Santa Fe Ave.,
Los Angeles 54, Calif.

A BALL takes the place of a worn-out washer to repair faucet; 29¢ for four.

Vande Corp., P.O. Box 898,
Beverly Hills, Calif.

Masonry Fasteners

[*Continued from page* 96]

resharpened to a chisel point. In use, it should be rotated slowly. Better still, use a drill designed especially for this rugged purpose.

Masonry drills fall into two groups: those that are rotated to make a hole and those that are hammered. Hand or machine power may be used. The most common impact type is the three or four-point star drill which is available in various sizes. Others, such as *Rawldrills*, range from as small as 5/32-inch up to ¾-inch and come with either a straight or a twist flute. They may be used by hand, in a power hammer or with an impact driver attachment for a power drill. A rubber holder is available to cushion the hand from hammer blows.

When using an impact drill by hand, it

[*Continued on page* 113]

The proof is in the puffing!

PRINCE ALBERT has the flavor most favored in the U.S.A.

- always tastes fresh
- mild, mellow flavor
- cool 'n' steady burning

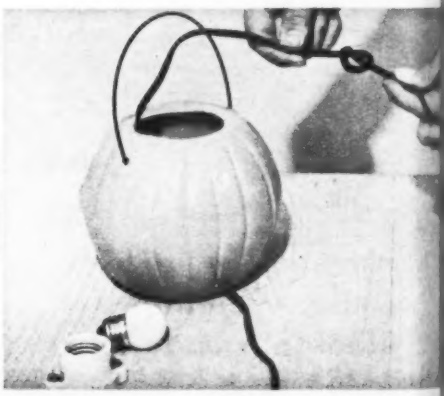
PRINCE ALBERT

R. J. Reynolds Tobacco Co., Winston-Salem, N. C.

ILLUMINATED JACK-O-LANTERN

HALLOWEEN is mostly for the kids but even the crustiest of us, by helping them to enjoy it, can find as much fun for himself. This modern version of the traditional jack-o-lantern is made up of a plastic pumpkin, a 7½-watt bulb, a porcelain socket and a length of wire. To keep out the weather use an oversize jar cover painted black as a hat for the head. Its eerie aspect, the mark of the occasion, will delight Halloween visitors.—*John N. Roe*

TWO screw holes for the bulb socket are drilled through plastic pumpkin bottom.



WIRE is passed through hole in lantern back and then knotted inside for safety.

Masonry Fasteners

[*Continued from page* 111]

should be rotated between hammer blows to cut a true hole and prevent jamming. After the hole is started, the drill should be "jumped" to keep the hole clean and make further drilling easier. For best results, the drill should be hit squarely and not too hard. A heavy hand actually makes progress slower and may break the drill. When working on a glazed surface such as ceramic tile, first chip away the surface with a sharp punch. Finally, keep the drill sharp.

If many holes are to be drilled, it is best to purchase a carbide-tipped masonry drill. This type is used in a slow-speed electric drill or in one which has the speed reduced by an external reduction gear attachment. No more effort is expended with these drills than would be necessary to bore holes in hard wood except that it takes a bit longer.

The fastener used most in hollow masonry walls or other thin walls is the *toggle bolt*. It is a machine screw onto which is threaded a single or double collapsible wing. The wings fold flat against the screw for passage through the hole and spread out as an anchor at the rear when the screw is tightened up. Toggle bolts are sold in many sizes with round or flathead machine screws and also come with a stud end which takes a nut.

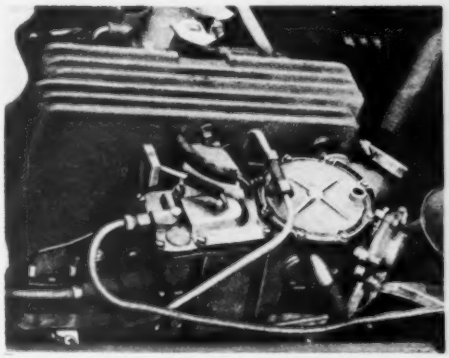
Another fastener used on thin walls is the *Molly* type. It is a machine screw with a sectional sleeve that fans out and flattens against the inside of the wall when the screw is tightened. The screw can then be removed, run through the object to be hung and screwed back into the part of the fastener remaining on the inside of the wall.

The largest group of holding devices consists of the type which goes into solid material. This requires the drilling of a hole and the insertion of an anchor which is expanded in one way or another. The hole must be exactly size recommended.

One plug type of screw anchor is made of chemically treated twisted strands of jute fiber. As the hole, the screw and the plug are practically the same size, a tremendous amount of compression develops. Each plug contains a hollow metal core

Test your automotive I.Q!

QUICK QUIZ BY QUAKER STATE



1. *What is the purpose of this alternative to the conventional carburetor?*

2. *What does this symbol stand for?*

The symbol stands for your car's best engine life preserver—Quaker State Motor Oil. Super-refined from 100% pure Pennsylvania Grade Crude Oil, Quaker State keeps your car on the road, out of the repair shop—saves you money! Insist on Quaker State. Available most everywhere. For your dealer's name, call Western Union Operator 25.

ANSWERS: 1. *Fuel injection system, for efficient fuel consumption.* 2. *World's finest motor oil.*

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- Everything in Stereo Hi-Fidelity
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- TV Tubes, Antennas, Accessories
- Parts, Tubes, Transistors, Tools, Books
- Amateur Station Equipment
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which makes it possible to unscrew and replace the screw if necessary. The Rawl plug is well known and the Star Fiberplug is similar.

Temporary anchors are sometimes substituted. These are made from wood plugs, short lengths of round pencil, steel wool or lead wool. With the possible exception of lead wool, none of these will hold up as well as the fiber plugs. Lead or plastic expansion shields are also used with wood screws in the same manner as the jute plugs.

The best known *expansion shield type* of anchor is the one made in two parts of iron or lead for use with a lag screw. As the lag screw is tightened into the internal threads of the shield, its two parts expand to grip the sides of the hole. The hole size to be drilled is generally stamped on the side of the anchor.

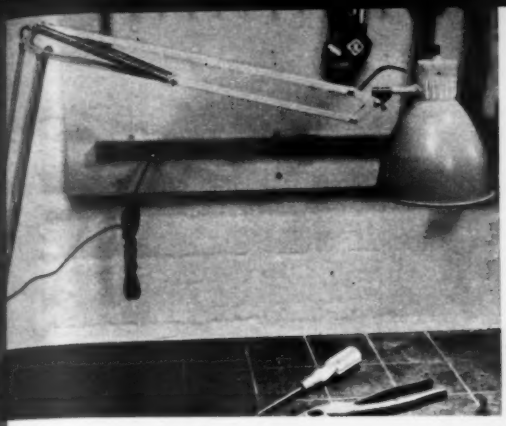
Drive anchors come in one piece with a countersunk, round or stud head. These are driven like a nail into a pre-drilled hole which compresses their pre-expanded sides to hold them firmly. Another anchor is made for use with a special nail. It's a shield into which the nail is driven to expand its lower end. The primary use is for holding dead loads.

All the anchors mentioned for use in solid walls also may be used in masonry floors to hold benches, cabinets and other objects in place. From the complete line which is detailed in the charts, you can take your pick and do that job which has stumped you until now. •

LIST OF MANUFACTURERS

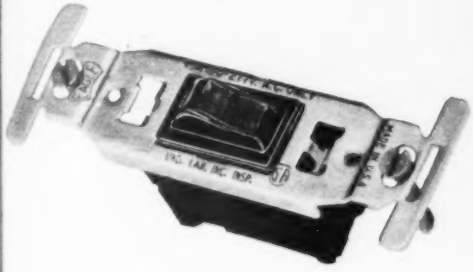
Ace-Sycamore, Inc., 448 Dekalb Ave., Sycamore, Ill.
Arro Expansion Bolt Co., Box 388, Marion, Ohio
Columbia Fastener Co., 3229 S. Ashland Ave., Chicago 8
Cosmo Industries, Inc., 6012 Wayzata Blvd., Minneapolis 16
Diamond Expansion Bolt Co., Inc., Garwood, N. J.
Goodloe E. Moore, Inc., Danville, Ill.
Independent Nail & Packing Co., Bridgewater, Mass.
Molly Corp., Reading, Pa.
Ramset Fastening System, 289 Winchester Ave., New Haven 4, Conn.
Schneider Engineering & Electronics, Inc., 3592 N. W. 52nd St., Miami, Fla.
Star Expansion-Industries Corp., Mountainville, N. Y.
Super-Grip Anchor Bolt Co., Inc., 3333 N. 22nd St., Philadelphia 40
Tremont Nail Co., Wareham, Mass.
U. S. Expansion Bolt Co., York, Pa.
United States Steel Corp., 614 Superior Ave., N. W., Cleveland 13
Wall Plugs, Inc., 8347 S. Racine Ave., Chicago 20

MI's HARDWARE STORE



TECH-LYTE, a "lazy" action counter-balanced gray enameled shop light, in kit form, $9.95.

Zack Electronics, 1422 Market St., San Francisco, Calif.

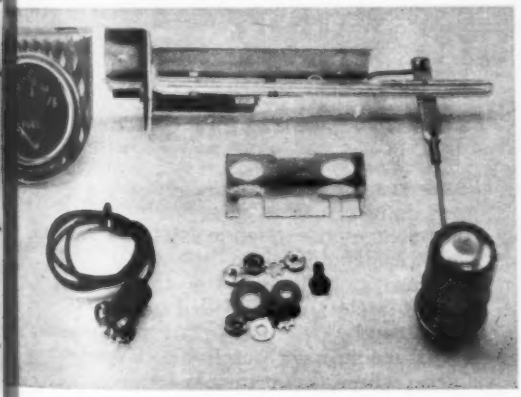


TOUCH-A-MATIC, a silent action wall switch features narrow "throw," pressure terminals.

Eagle Electric Mfg. Co., 23-10 Bridge Plaza South, Long Island City 1, N. Y.

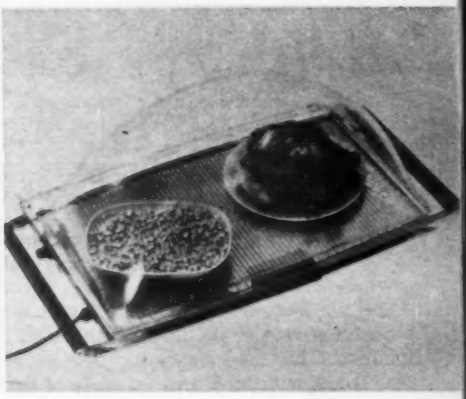
WEATHER-RESISTANT bluebird house is sold in a knock-down kit for $2.

Duncan Bluebird Nest Box, Greenfield Wood Prod., Youngs Creek, Ind.



VOLKSWAGEN gas tank gauge is available as a kit for owner installation. Cost, $15.30.

Lafayette Radio, 165-08 Liberty Ave., Jamaica 33, N. Y.



HOTRAYDOME, an electrically-heated server with plastic dome, $15.

Salton Mfg. Co., Inc., New York, N. Y.

COMPACT Nautilus No-Duct by Major Industries, Inc. filters with aluminum and charcoal.

WHAT YOU SHOULD KNOW ABOUT DUCTLESS RANGE HOODS

By Al Bernsohn

GETTING rid of smoke and cooking smells used to be a simple matter when our constitutions were hardier and we were accustomed to a gale or at best a strong draft blowing through the house. The used air, being heated, rose of its own accord and in earliest times was let out into the open through a hole in the roof. This method was later modified into a chimney of which a more recent development is the ducted range hood which uses a fan to assist the waste air through ducts into the open.

The principle in all of these is the same. Stale air is expelled outside and replaced by fresh air. In our more complex modern way of living, situations arise where this principle cannot operate because there is nowhere to send the smoke and grease-laden air. This means that the smell of steak and onions, not a bad smell when it is fresh

and you are hungry, hangs around the kitchen long after it is appreciated, finding its way into the bedroom, the clothes closet, in fact never disappearing until replaced by another smell. The remedy for this undesirable condition came with the development of the ductless range hood.

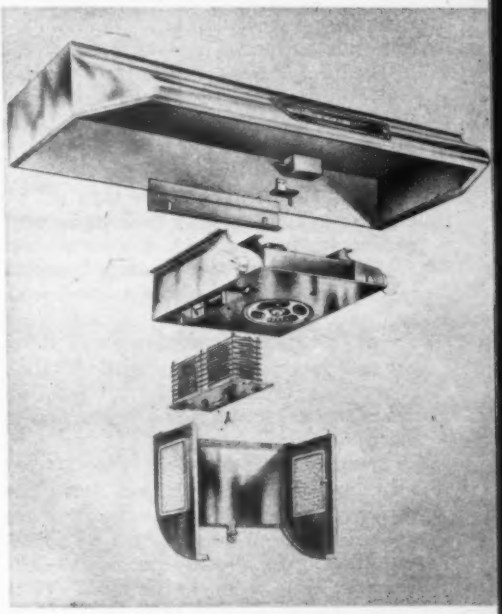
As its name indicates, this type of hood has no ducts and therefore no access to the outside. Its function is not to drain off and expel the impure air but to clean that air and send it back into the room. It is not intended as a substitute for the ducted type but for use when it is impractical to install the latter. It cannot get rid of heat and moisture, a drawback in summer, but sometimes a good point in winter when heat is at a premium. What it does very efficiently is to eliminate smoke, smell and grease and it has the advantages of being compact and easy to install.

The air is cleaned in two stages as a fan draws it through the hood. The first step is the removal of grease particles which are caught by an aluminum filter. Washing in detergent several times a year is enough to keep this filter clear.

The second process is the removal of odors, smoke, pollen and dust after which the air is ready to be sent into the room again. On most ductless hoods, this second process is carried out by a filter of activated charcoal which absorbs the impurities.

Activated charcoal is the stuff which helped to keep the air fresh in the atomic-powered submarine Nautilus while it was underwater for months. It is made by roasting woody materials until they become hard, black, shiny and extremely porous. A maker estimates that in 1.5 cubic centimeters of activated charcoal there are over 125 million channels which can be only detected with a microscope. It is these channels which give the material its porous or absorptive capacity. In a New York chemical show its effectiveness was demonstrated by a really sure-fire test. Two skunks were exhibited in an enclosed cage. Spectators could sample their protective scent in its natural state in minute doses through an atomizer. They were then exposed to a stream of

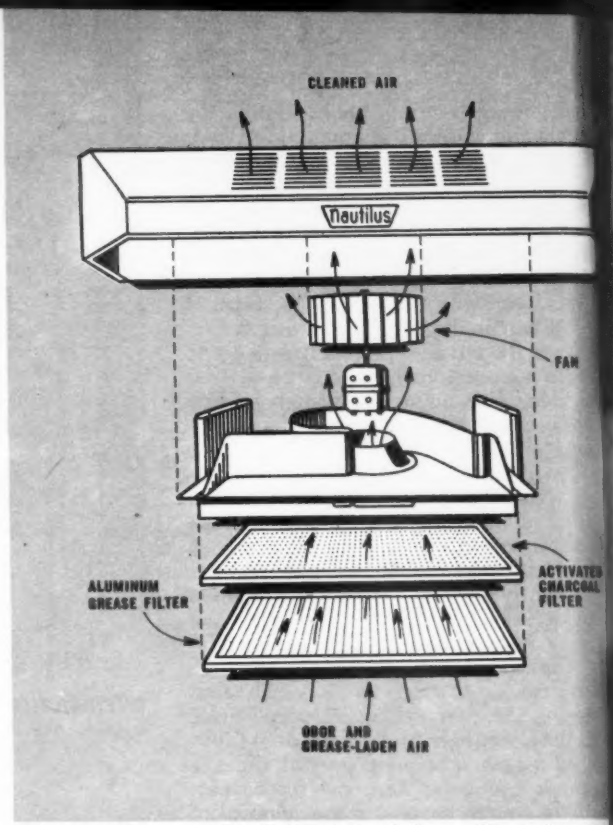
OVENMASTER made by Ductless Hood stops smoke and smell from built-in ovens.



IONIZATION chamber and fan are contained in core of Progress electronic hood.

air from the cage which, after being passed over charcoal filters, was completely free of taint.

An activated charcoal filter loses its efficiency as grease finds its way past the preceding filter and clogs the pores. For this reason there should be a definite gap between the aluminum filter and the charcoal to avoid grease being transferred by conduction. When the charcoal begins to lose its porosity it is replaced or re-activated by prolonged baking.



There are alternatives to activated charcoal for removing odors and finer particles. One is a filter of aluminum mesh coated with a sticky solution which, working like flypaper, traps the particles as the air passes over it. This adhesive surface is renewed by periodic application of the solution from a spray can. Another hood works electronically by ionization. Air particles are first given a positive or negative charge and then attracted to the filter plates which act as magnets. The advantage of the electronic type is that no replacement of filters is needed.

Ductless hoods are generally easy to install. Either they are attached with screws to the underside of a cabinet above the range or, where there is no cabinet, to a peninsula mounting which is screwed into the wall and projects over the range. The hood is attached to the mounting and simply plugged into an electrical outlet.

In making one's selection from the variety of hoods on the market there are several things to keep in mind. In general the bigger the filter area the less you will have to do to maintain it but this does not mean that the hood with the biggest filter area will be the most efficient. A lot depends on the efficiency of the fan and its ability to keep the air circulating through the hood. Some manufacturers have neglected to build up fan power in proportion to the size of the filter area. There is no point in having unnecessary bulk and expense of a larger size filter than you need. On the other hand, although a shallow unit looks trim it is necessary that a certain amount of air be accommodated under the hood. A unit that does not intercept the steam from the cabbage on the front burner is not doing its job.

The method of discharging the clean air is an important consideration. If the discharge is too close to the intake it can create turbulence, hindering the normal rise of the heated air into the hood. Usually the higher the point of discharge the less likelihood there is of impeding the intake.

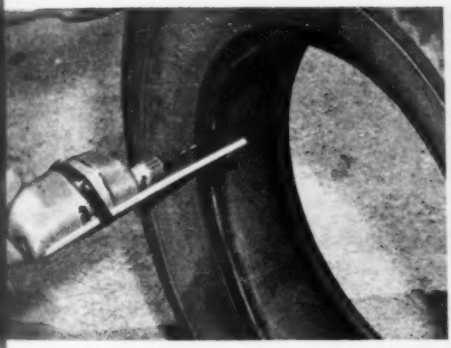
Among the details to look for when choosing a hood is a built-in light. This is helpful and often necessary as the hood, be mounted two feet above the cooking

[*Continued on page* 131]

1. Deflate the tire. Break away the tire from the wheel (both sides) with a 2x4.

2. Remove the valve from the wheel with a hack saw. Smooth the wheel with steel wool.

HOW TO PUT A TUBE IN A TUBELESS TIRE



3. Drill eight holes on each side of the tire with a 5/64-inch drill. Each hole to be ¼-inch deep and ⅞-inch from the bead.

This step (venting) is recommended by a leading tire manufacturer. Next (4) dust the tube with talcum and insert it into the tire.

5. Pass a valve fishing tool through hole in wheel and screw it to the valve stem.

6. Use two or more tire irons to mount the tire back on the wheel. Be careful not to pinch the tube.

7. Take small "bites" as you get to end. Inflate tire, deflate and inflate again.

THE OIL CAN, simple to use, goes a long way in preventing troubl

CAR CARE

HOW ABOUT LUBRICATING YOUR CAR?

By Frederick C. Russell
Member, Society of Automotive Engineers

DESIRABLE as it is, the regular 1,000-mile greasing just doesn't provide sufficient lubrication for even the most advanced car. The machine's anatomy cries out for a few drops of oil here, a pat of special lube there. An owner can't afford to be without the oil can. Costly repairs can be nipped in the bud and no one will ever be able to estimate how many accidents auxiliary lubrication prevents.

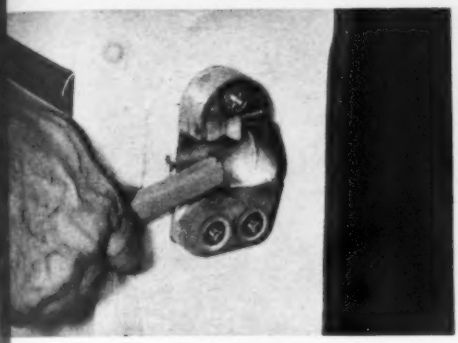
Whether we're trying to get more mileage from the chassis, the body or the equipment, lubrication is a major factor—and we're better off today because there are so many special lubes in spray cans, grease sticks or tubes. Recently, the steering wheel of my car got to squeaking. It could have been a bushing condition but I decided it might be a lot simpler. Picking up a can of Garry's Hush, which is also useful for stopping noises around window frames of convertibles, I gave the noisy area a few shots. It checked friction between the wheel hub and the post housing and the noise vanished.

When his engine failed to drop back to idle upon releasing the gas pedal, one owner decided that the dashpot (a carburetor throttle brake used on some cars with automatic drives) needed replacing. His mechanic had a different view. "Throttle linkage sticks," he announced, reaching for a can of Gumout automatic choke cleaner. This quickly removed the binding gum.

The same treatment should be given pivot points for the clutch and transmission shift linkage. If they do not have rubber bushings, put a few drops of light oil on the clutch and brake shafts. The rule with rubber bushings (shackles, end

WIPE breaker arm rubbing block in distributor with a small amount of Vaseline.

EYEDROPPER is just the thing to oil a generator bearing without risk of excess.



NOISE of rattling door is often checked by using grease stick on the lock striker.

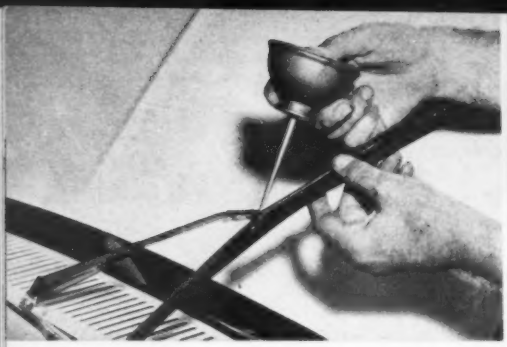
TWO OUNCES of soluble oil in radiator lubricates internal parts of water pump.

of anti-sway bars or shock absorber arms) is to leave them alone unless a squeak develops. Then lubricate them sparingly with special lube for rubber parts, brake fluid will do.

Car makers usually caution against oiling the carburetor linkage. This is because many owners would pour on the oil until it collected so much dirt and grime that it wouldn't operate smoothly. Knowing the facts, however, it would seem proper to use a spray-on cleanser

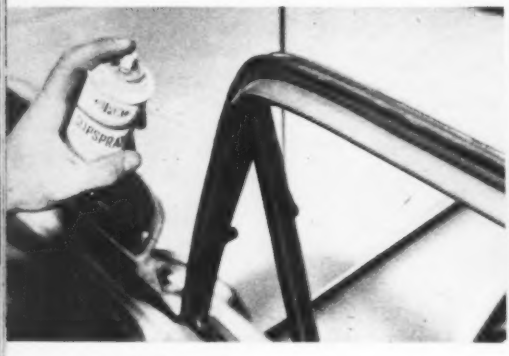
A FEW DROPS of brake fluid kills noise in bushings at the ends of anti-sway bar.

DROPPING oil on hard-to-crank window gears may be possible with glass lowered.



A LITTLE OIL on each pivot point aids in keeping up the windshield wiper speed.

LUBRICATE a car lock by putting some powdered graphite on key before insertion.

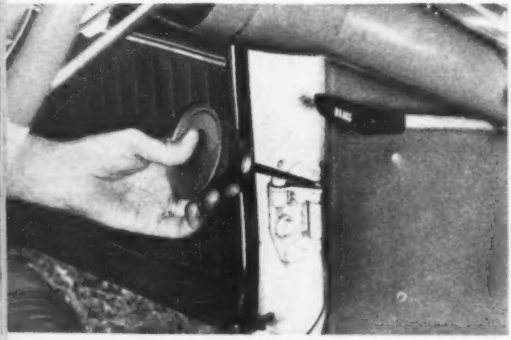


SILICONE SPRAY on door weatherstripping is effective in preventing squeaks.

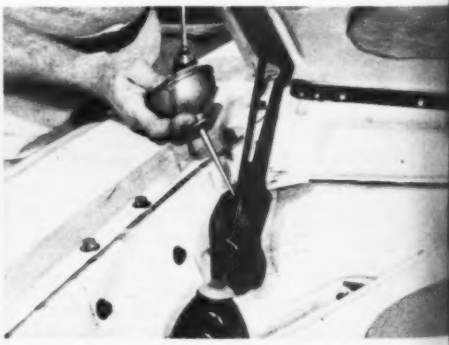
LIGHT COAT of oil on the telescoping antenna eliminates sticking or corrosion.

to remove all dirt and then oil lightly, repeating the process at least once a month. This would check the wear that so often results in burrs.

Jumping to accessories for a moment, we find that windshield wipers often fail to work because of binding pivots, cranks or linkage. Many times they operate slowly for the same reason—want of a little oil. Manufacturers, however, warn against confusing a need for lubrication with mechanical binding which



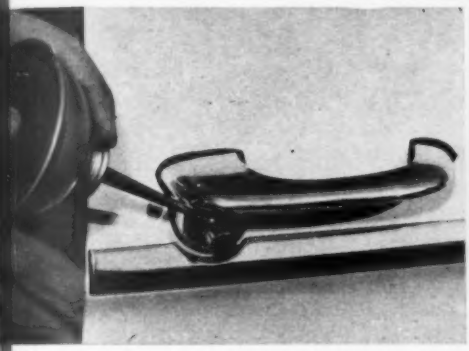
DOOR HINGES should get a little lube now and then to keep them from groaning.



MOVING PARTS of the hood mechanism require periodic oiling for best operation.

TRUNK should not be forgotten at lock, hinges or bolt securing the tire and jack.

HOOD LATCH will need a dab of grease if you want smooth, rust-free operation.



LOCK RELEASES on the doors are other parts that can stand a few drops of oil.

SPINNERS on the window handles really spin after they get a little lubrication.

is due to misalignment. The latter is often found in power window operation and it may be the answer when a power seat is slow in operating. Mechanical binding also may occur if windshield wiper blades bear too heavily against the glass. Check the wiper spring action.

Use SAE 10 engine oil for pivot points of heater and air conditioning controls as well as for the movable parts of a windshield washer control. This grade of oil is just [*Continued on page* 137]

BUCKET SEAT hinges require light oil. Take care not to get it on the upholstery.

THE SQUEAKY glove compartment is only another hinge or two crying out for oil.

SHINGLE prevents marring of wood surface when hammering in a finishing nail. Drive nail flush, finish with a nail set.

TESTER makes fluorescent lamp light if starter is faulty. Consists of normally open micro switch wired to the starter contacts.

HOME AND SHOP SHORTS

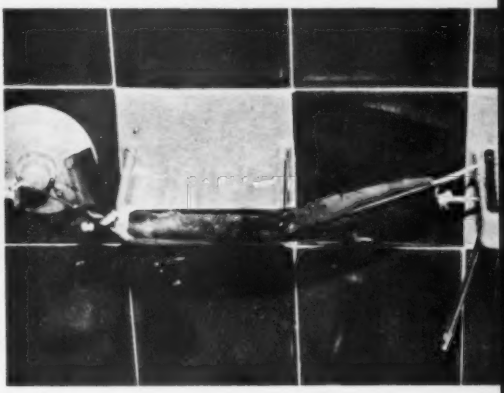
Send Freddie Fumbles your idea of a good short-cut time-saver or safety device in your work, whether it be in the home, shop, office or farm. Each tip accepted will be paid for at the rate of $10. Naturally we cannot acknowledge or return the ones we cannot use. However all will be carefully read and evaluated. (Those which we can use in other departments of MI will be paid for at our regular rates.) Please send in your ideas on a post card only. Address to Freddie Fumbles, *Mechanix Illustrated*, 67 W. 44th St., New York 36, N. Y.

FREDDIE FUMBLES

SCREWDRIVER or any similar tool that has rusted is quickly cleaned by jabbing it into a lawn or sand bank a few times.

PENCIL won't roll off inclined surface of a drawing board if you wrap a piece of masking tape around, leaving tab as shown.

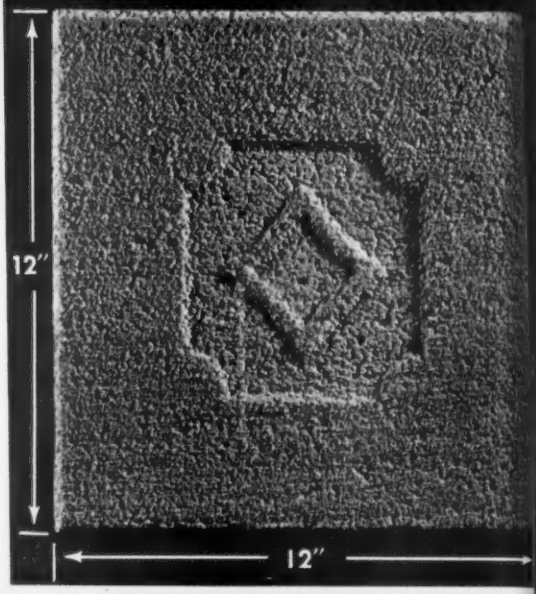
NOTCH filed in the "on" edge of a thumb switch will allow you to tell strictly by touch whether the appliance is on or off.



INNER TUBE section stretched between fixtures or suction cups puts pressure on ceramic fixture if repair has to be made.

NEW FEATHER-LIGHT CEILING TILE

NEW plastic tile is so light that a hundred weigh only five pounds! They measure 12 inches square, are a half inch thick, retail for 15 to 25 cents each, depending upon color and style.



DO-IT-YOURSELF home owner checks width of furring strips with a tile. Note that the furring strips are six inches apart.

NINE DABS of cement are sufficient to hold the tile to the 1x2-inch furring strips. A putty knife is used as an applicator.

THE FIRST corner of a cellar workshop is nearing completion. The tiles are available with or without embossment.

MADE by the Arvey Corp., 3500 N. Kimball Ave., Chicago 18, R-V-Lite tiles are foamed polystyrene plastic. Sold in eight styles and 13 colors, they're heat-insulating, fire-retardant and noise-deadening. A regular tile absorbs 30 to 40 per cent of the sound and an acoustic type eliminates 55 to 60 per cent. Installation is a snap with special cement supplied.—*A. Doyle*

SERVICE TIPS

from Detroit

When using choke on Corvairs always depress accelerator half-way first. This takes the extra load of moving the accelerator linkage off the choke wire. If excessive effort is required to operate the choke, check the front cable wire by detaching it from the slider block to the rear cable assembly and pulling it and the knob out of the conduit. Severe bends, hard kinks or evidence of corrosion indicate the cable should be replaced. If small kinks are found which can be straightened by hand, replacement is unnecessary.

* * *

Plymouth, DeSoto and Valiant owners are urged by the makers to think of their shock absorbers as individual units. There is a mistaken tendency to have them serviced in sets. Shock absorbers are not matched in pairs for installation. If one should fail, only that one needs replacing. Oil appearing on the outside does not necessarily signify fluid leakage, as all units contain a reserve supply of fluid permitting controlled seepage to lubricate the seals.

* * *

For replacement of cargo floor boards on Chevrolet pickup and stake trucks use clear, yellow pine boards. Select boards at your local lumber yard from four, six or eight-inch stock widths and have them dressed to floorboard width with a 3/16x5/8-inch rabbet to take the wear plates. After milling, boards should be coated with wood sealer.

* * *

An improved coil cable assembly has been developed for Plymouths and Valiants which minimizes ignition "drown out" due to road splash. New long-skirted neoprene nipples fit tighter on the cable insulation and provide better sealing on the distributor cap and coil tower.

DON'T SPOIL YOUR NEXT PAINT JOB BEFORE YOU BEGIN

Paint better and easier with any kind of paint on any surface with brushes of 100% Du Pont tapered TYNEX®

When picking a paintbrush from the vast variety on display at your dealer's, remember: A poorly made brush can spoil your job before you begin. To be safe, buy the brush with the red quality seal . . . your guarantee that the brush is made 100% with Du Pont tapered TYNEX nylon filament. Then check for full stock, mixed lengths, properly processed tips. Results? You can paint better and easier on any surface, with any paint. Look for the red quality seal at stores where quality paint is sold!

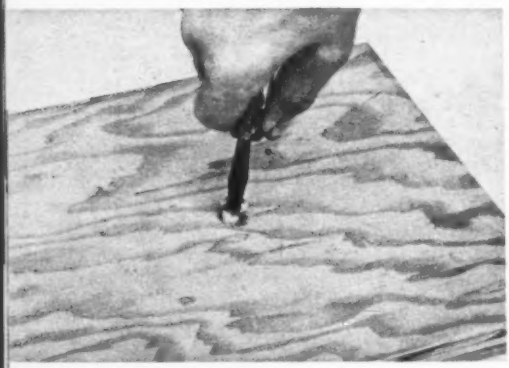
E. I. du Pont de Nemours & Co. (Inc.),
Polychemicals Dept., Wilmington 98, Delaware

DU PONT
REG. U.S. PAT. OFF.

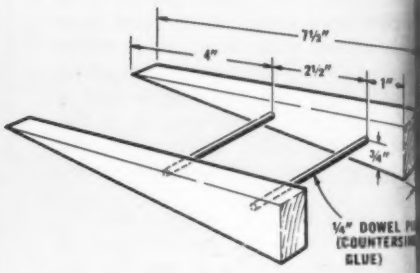
BETTER THINGS FOR BETTER LIVING . . . *THROUGH CHEMISTRY*

PHOTO TIPS

TO FLATTEN curled negatives, wrap them around a bottle so the curl is reversed.



CONVERT your tripod to projector stand with a brass bushing (outside threads ⅜-inch, inside threads ¼x20). Screw the bushing into a ⅜-inch hole drilled in plywood platform.



DO YOUR CLOSE-UPS of tall buildings seem to lean backwards when enlarged? Correct this by sliding wedge under bottom of enlarger easel until the distortion disappears.

Ductless Range Hoods

[*Continued from page* 120]

surface, tends to block out some of the light reaching the range top from above. Make sure the light is well protected and easy to clean. When comparing hoods listen to the fan motor's noise. Motors on floating neoprene mounts are considerably quieter.

Prices of ductless range hoods vary from $75 to around $150 depending on size and finish used. Most manufacturers offer splash plates to match the hoods, giving the whole installation a more harmonious appearance. In addition there are also oven hoods on the market, working on the same principle.

As living conditions become less spacious we learn to make better use of the space we have. Compactness, whether it is in cars or kitchens, reflects this trend. The kitchen shrinks, so does the amount of air available in it and we begin to think how we can use it most efficiently. This suggests that a device such as the ductless hood will before long be considered as essential to comfortable and even healthy living as the refrigerator and the air conditioner are today. •

DUCTLESS HOOD MANUFACTURERS

Berns Air King Corp., 3050 N. Rockwell, Chicago 18, Ill.
Broan Manufacturing Co., Inc., Hartford, Wis.
Caloric Appliance Corp.
Township Line and Old York Road, Jenkintown, Pa.
Chef-Aire Corp., Ocala, Fla.
Ductless Hood Co., Inc., 601 Plandome Rd., Manhasset, N.Y.
Fasco Industries Inc., Rochester 2, N.Y.
Major Industries Inc., 505 N. LaSalle St., Chicago 10, Ill.
Manesco, Inc., 605 Plandome Road, Manhasset, N.Y.
NuTone Inc., Madison and Red Bank, Cincinnati, Ohio
Progress Manufacturing Co., Inc.
Tulip and Caster Avenues, Philadelphia 34, Pa.
Puritron Corp., 15 Stiles St., New Haven, Conn.
Stanthony Corp., 5341 San Fernando Rd. West, Los Angeles, Calif.
Trade Winds, 7755 Paramount Place, Pico Rivera, Calif.
NOTE—for general information concerning range hoods and other ventilation problems write—
The Home Ventilating Institute
1108 Standard Bldg., Cleveland 13, Ohio

CASH FILING SAWS

Make from $3 to $6 an hour spare time or start a full time business with the

FOLEY SAW FILER

Here is a steady repeat CASH business you can start at home in your basement or garage, while you are working at your regular job. No experience is necessary to turn out perfect cutting saws —"the first saw I sharpened came out 100%. I think the Foley Saw Filer is a marvel of perfection," writes Clarence E. Parsons. No canvassing —every saw you sharpen will bring you new customers. You will find you can make up to $3 or $6 an hour—$20 to $30 a week in your spare time as a starter. "My spare time saw filing business has made me $952 these first ten months," says R. T. Chapman.

The new model 200 Foley Saw Filer (shown here) is the *first* and *only* machine that automatically sharpens combination (rip and crosscut) circular saws—also all hand saws, band saws and crosscut circular saws. It is easy to operate—simple adjustments—no eyestrain. Patented jointing principle evens up all irregular teeth and makes an old saw cut just like new.

This Free Book* "MONEY MAKING FACTS" *Shows How To Start

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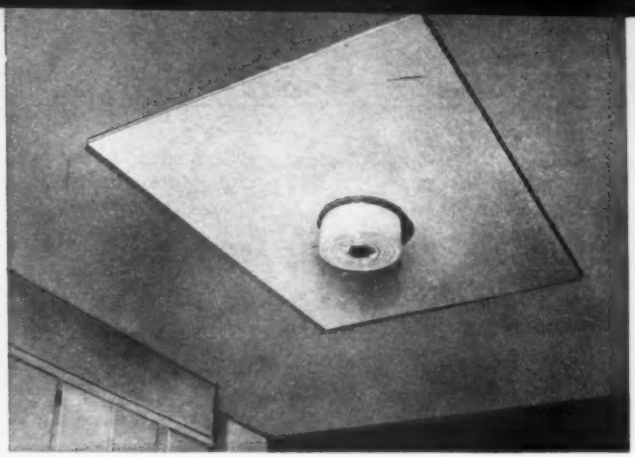
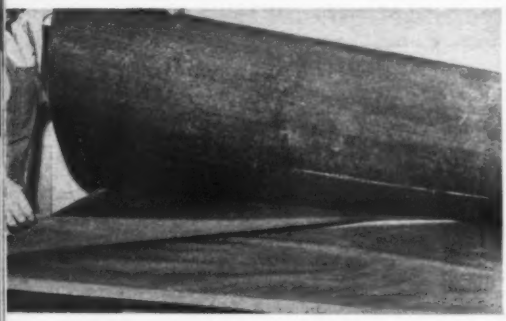
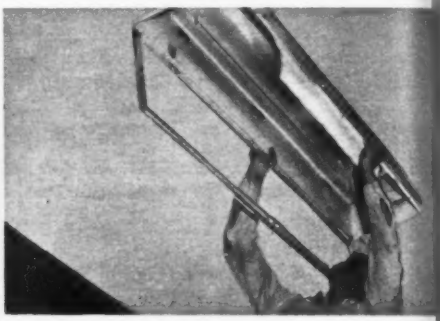


KITCHEN CEILING PANEL

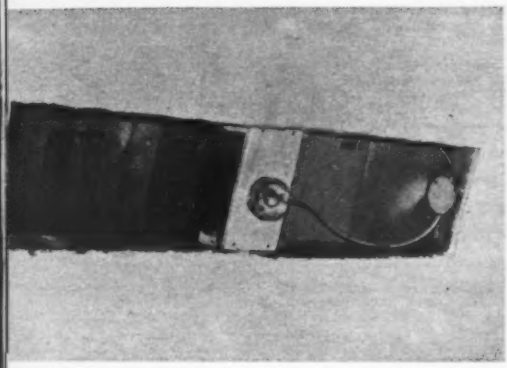
PROBLEM: How to remove a built-in kitchen ceiling light, substitute a flush-type fixture and yet not leave any ugly scar on the ceiling? It was neatly solved by cementing Panelyte (White, Iridescence), a decorative laminate made by the St. Regis Paper Co., to a 4x5 hardboard [*Continued on page* 133]



PANELYTE is glued to hardboard with contact cement. Paper is used to position panel.



REMOVING old fluorescent light fixture. This left a gaping hole in the ceiling.



WIRING. Junction box was installed (far right) and outlet box connected as shown.

SCREWING panel to the ceiling. This is a job that calls for at least one helper.

Ceiling Panel

[Continued from page 132]

INSTALLING new incandescent light fixture. Screw heads in the panel were painted white.

panel, ½-inch thick cut from 4x8-ft. stock.

The substitution of the incandescent fixture for the built-in fluorescent fixture was decreed by the mistress of the house because the recessed fixture did not adequately illuminate the ceiling.

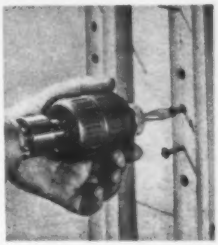
The first step was to glue the Panelyte to the hardboard with contact cement. Then current was turned off and the old fixture was removed. A junction box and an outlet box were required in order to bring the power to the center of the ceiling.

Inasmuch as the panel is 48-inches wide, it was impossible to engage more than three parallel ceiling joists. The position of the joists was transferred to the panel, pilot holes drilled and a four-inch hole for the new light fixture cut in the panel.

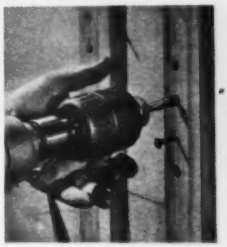
The next step required an assistant for the business of screwing the panel to the ceiling joists. Two-inch flathead screws were used. Next, wiring the lamp, black to black, white to white. The one shown in the photograph is made by the Moe Light Co. (Style M-432). All joints were soldered and taped securely (if you are unfamiliar with wiring techniques, it is best to leave this step to a professional electrician). Now then, step down, replace the fuse and admire your work.—*R.B.*

THE EASIEST WAY IN THE WORLD TO DRIVE AND **REMOVE** SCREWS

1. After drilling pilot holes simply attach a Versamatic to electric drill. Fits any make.



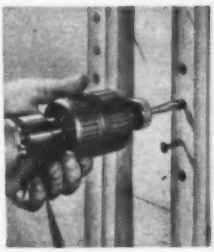
2. Place screw in hole; drive it easily with slight forward pressure . . . hold housing in fingertips.



3. Your fingers act as a clutch . . . starting, stopping action instantly. Simple and safe . . . no blisters.

Versamatic puts your power drill into low gear...

by means of 7 to 1 speed reduction. Gives your drill 7 times more power.



4. Versamatic runs in reverse for removing screws. You won't believe how easy it is until you try it.

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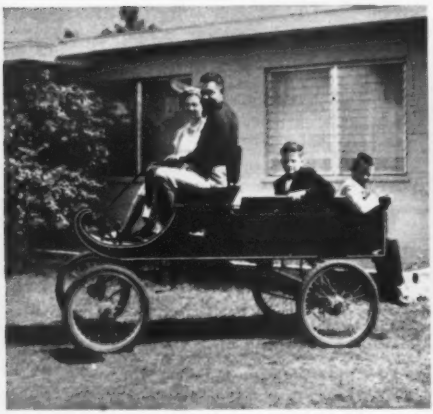
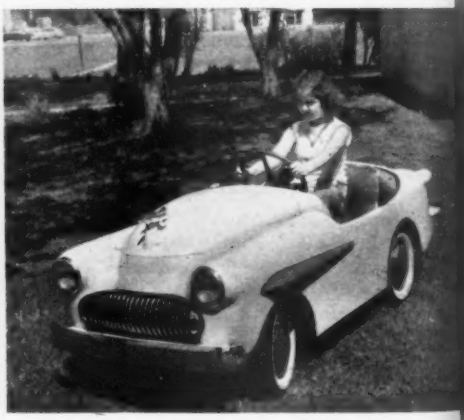
REPLICA of 1890 Westinghouse traction engine, scaled to one-third size, was built by Frank Jasper, Beckmeyer, Ill.

Golden Hammer Award Winners

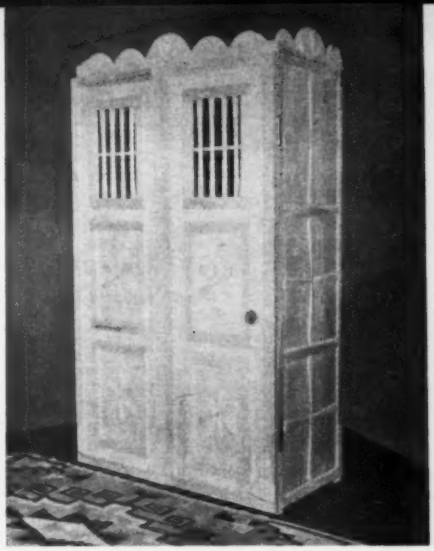


REAL family car is this 1901 Olds, made by Eldon Parker of Pinellas Park, Fla., with the aid of MI plans. Excluding engine price, construction cost totaled only $160.



SMALL FRY delight in this quarter-scale sports car. E. L. Mullins, Waverly, Ohio, used galvanized steel for body, a six-hp air-cooled engine giving 50-mph top speed.

TV CABINET finished in mahogany veneer is project of J. C. Black of Mobile, Ala. Constructed of maple plywood; openings at side are covered with maroon grill cloth.

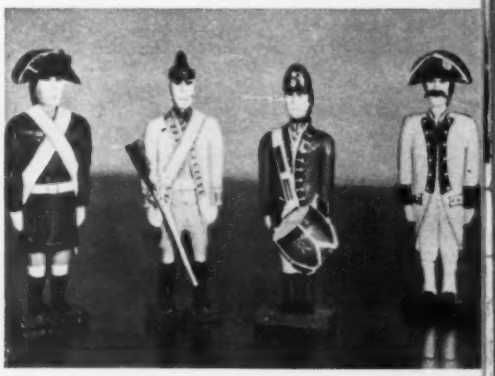


ALACINA, kitchen cupboard used in early Spanish-American homes of southwest, was designed, built and hand-carved by Mr. and Mrs. M. Eby, University Park, N. M.

Each craftsman whose project is shown receives a 24-karat gold-plated Hammer and a Workbench Award Certificate. Runners-up will be sent a beautiful gold-plated Golden Hammer Tie Bar or MI's Certificate of Merit. So send us some *black-and-white photos, with negatives*, and a full description of your latest project. Photos of your workshop are also eligible. Send all entries, with return postage, to MECHANIX ILLUSTRATED Golden Hammer Awards, 67 West 44th St., New York 36, N. Y. Entrants are advised that MECHANIX ILLUSTRATED cannot accept responsibility for customs charges, duties, taxes, etc., levied against Golden Hammer and Golden Hammer Tie Bar winners outside the United States.

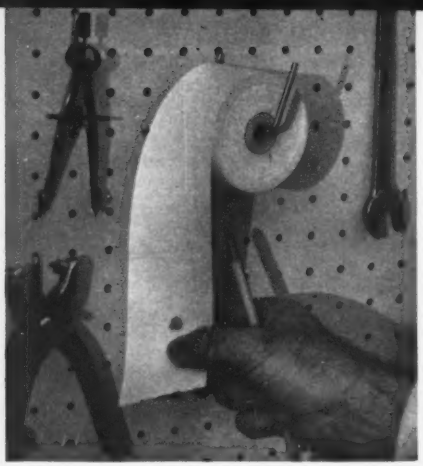
The following craftsmen have been awarded GOLDEN HAMMER TIE BARS for their projects:
C. E. Billings, Barberton, Ohio • Bud Bowler, Mount Vernon, Ind. • Frank D. Collingbourne, Elgin, Ill. J. A. Course, Homewood, Ill. • F. A. W. Deal, Shepperton, England [Continued on page 137]

SEWING CENTER was designed for his wife by Alan Bigelow, Neah Bay, Wash. Drawers are made of cedar to aid in moth-proofing. $100 and 160 hours went into construction.



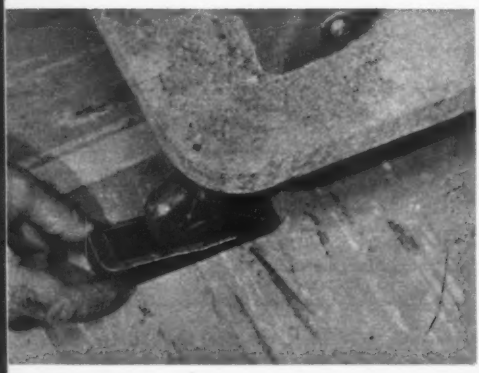
SOLDIERS from armies which fought in the Revolutionary War are just a few of a collection of 180, hand-carved in pine by Army M/Sgt. Joseph Grykiewicz, 42nd Med. Co.

SHOP SHORTS

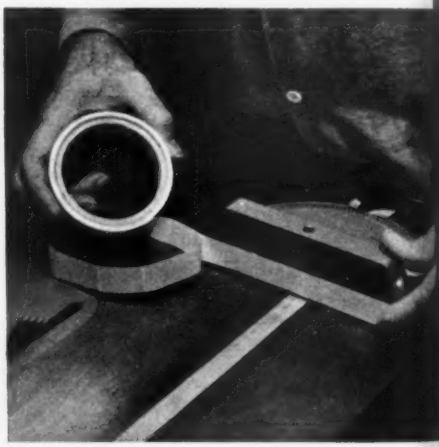


HANG a roll of adding machine paper in the workshop. It's useful on the many occasions when a scrap is needed for notes.

MITER GAUGE is easily zeroed at 90° by using the milled edge of the saw table as shown. Edge is perpendicular to the ways.



POWER TOOLS mounted on casters can be prevented from creeping across the floor if rubber door stops are used as wedges.



STRIP of double-faced adhesive tape applied to miter gauge face will keep stock from shifting sideways while crosscutting.

FILE won't have a tendency to load up quickly with metal particles if the surface is stroked several times with chalk.

Lubricating Your Car

[*Continued from page* 125]

right for a number of body parts, including door latch rotors, the deck lid, hood, door hinges and glove compartment latches.

A grease stick comes in handy for a number of body parts such as the door latch striker plates and lock bolts. In addition to oiling the door hinge and wiping off the excess, apply a little stick grease to the lock striker. Two things easily overlooked are the door switches for the dome and dash lights. Use stick lube for coating the ends of the switch plunger and the contact points on the doors.

Lubriplate is recommended for door latches and hinges as well as hold-open clips. It's just right for lubricating the luggage compartment hinges and the torque rods where they're used as springing for the lid. Then there is a silicone lube which is useful for lightly coating hood lacing to check squeaks. Use this for windshield wiper cams, door weatherstripping and door bumpers, always wiping off the excess. It's a smart idea to apply a little of this lube to the top surface of the drain hole sealing strips in the doors. This prevents the lip of the sealing strip from sticking to the inner panel and it would plug the drain holes in some cars and cause corrosion.

A lot of repair work doesn't pan out because car owners fail to oil their way along. Typical are the rear axle oil seals which, newly installed, fail to prevent lube from working out into the brake drums just because they were not softened by soaking in oil. In another case, a friend of mine replaced a screw-on type oil filter and found that it leaked freely. In replac-

[*Continued on page* 138]

Golden Hammer Awards

[*Continued from page* 135]

William J. De Shurley, Pascagoula, Miss. • Robert H. Drumm, Brooks Air Force Base, Texas • Cecil C. Dunlop, Sauk Rapids, Minn. • Erling R. Ericksen, Chippewa Falls, Wis. • John T. Fitz-Gibbon, Louisville, Ky. • A. Fuess, Alton, Ill. • Egil Furuli, Petaluma, Calif. • A. Anthony Giotto, Granada Hills, Calif. Charles D. Hedrick, Huntington, Ind. • Albert E. Helland, Chicago, Ill. • Milton L. Hoffman, Decatur, Ind. • Ronald Ivey, N. Quincy, Mass. • William Jernick, Aberdeen, Md. • Edward W. LaMott, Jr., Syracuse, N. Y. • Stanley Maisch, Long Beach, Calif. William F. Maloney, Spokane, Wash. • Charles McNeil, Rutland, Vermont • Geoffrey Hunter Moran, Salt Lake City, Utah • Sam Renick, Avenel, N. J. Harold Rupp, Fredonia, N. Y. • Arthur H. Sass, Little Silver, N. J. • Richard Silva, Plymouth, Mass. • Al Smolesky, Joliet, Ill. • Howard W. Street, Birmingham, Ala. • W. J. Vann, Winnipeg, Manitoba, Canada. •

The following craftsmen have been awarded CERTIFICATES OF MERIT for their projects:
Vemin, Gary and Donald Cockrell, New Braunfels, Texas • Fred M. Hodgins, Berkey, Ohio • Philip M. Goldberg, Evansville, Ind. • Mike L. Lellock, Punxsutawney, Pa. • George F. Mumford, Shannock, R. I. Robert Weber, New York City. •

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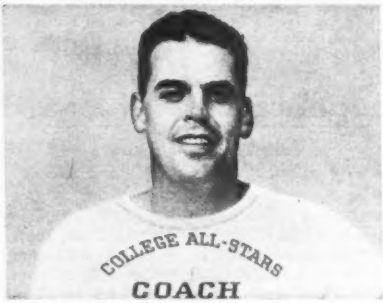

Otto Graham, famous football coach and non-smoker, says: "I know that Bantron will help anyone to stop or cut down smoking. Bantron is easy and pleasant to take. If you have tried to stop without success, I recommend you try it. Bantron has helped again and again."

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Lubricating Your Car

[*Continued from page* 137]

ing the filter he should have used a *new* gasket, carefully lubricated. It is important, too, to start with clean parts in any lubrication. In the case of such a filter, always wipe the gasket area of the base clean before installing the new gasket.

Some motorists have been lubricating the treads of spark plugs in the new aluminum engines. This is a mistake because lube retards heat transfer. The trick with aluminum is to screw the plugs in while the engine is cool as opposed to the cast iron head where the engine should be at normal operating temperature.

If your water pump has a grease fitting, be careful not to overdo it as this will force lube into the cooling system. Water pump noise often can be silenced merely by using an oil-type rust inhibitor in the coolant. Two ounces of such oil are enough and the water turns milky when you add it.

There are various dressings for noisy drive belts. Some are rubbed on and others are sprayed. If this doesn't do the job, chances are the belt pulleys are not properly aligned. Noise also may be due to slippage.

One important part of the engine which is usually neglected because it makes no noise is the manifold heat control valve. Unless the shaft of this valve is free, it may stick open or closed. If stuck in the open position, the mixture will be preheated even when the engine is hot. This will kill power and lower gas mileage. Before applying penetrating oil to the shaft of this valve, spray on some choke or carburetor cleaner. Then tap the end of the shaft lightly with a hammer and work its counterweight back and forth. It may be necessary to repeat the process several times to free a badly stuck manifold valve and replace it. I check this important valve once a week.

The Ventipane mechanism is another thing that needs lubricating. If too much effort is required to operate one which has no crank, the adjusting nut needs easing off. This, however, is a bench job. Rubber on these Ventipane will stay in condition longer if wiped clean and oiled occasionally with brake fluid. Window runs can be sprayed with the lube used for weather-

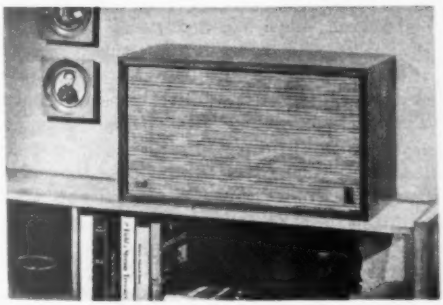
stripping but remember that the windows often operate hard because of excessive dampness which swells the runs. Window operating mechanisms vary widely and it is usually necessary to remove the door trim to get at them for greasing. However, I had one car on which I could lower the windows and drop oil directly on the gears with an oil can.

Design has come a long way since I used to crawl under the car and shoot laundry soap into worn universal joints but the slip yoke part of the drive line still needs more attention than it usually gets. One company now recommends that this part be greased if it sticks or develops other malfunction. I like their former rule to grease the slip yoke every 8,000 miles through the special grease plug provided.

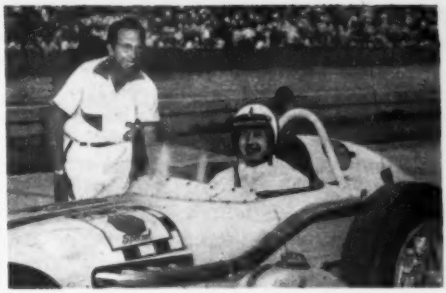
Because lubrication often isn't possible without taking things apart, there's a great advantage to preventing trouble through inspection. Another thing to remember is that certain car parts should not be lubricated. Be careful not to get oil on the rubber parts of the spring suspension system. If in doubt and the squeaking is bad, use brake fluid or special rubber lube.

Your car may not run like greased lightning because of other factors but proper lubrication will do a lot to provide record-breaking freedom from trouble. Get out that oil can. •

COMPACT TRIPLE SPEAKER



New shelf model hi-fi loudspeaker system is made by Jensen Manufacturing Co., 6601 South Laramie, Chicago 38. With 10-in. low-distortion woofer for full base and two direct radiator tweeters to complete audio range, it comes finished in oiled walnut for $79.50 or unfinished in ¾-in. gum hardwood at a price of $64.50.



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IMPERIAL Brush Cleaner

Tom Tests '62 Plymouth

[*Continued from page* 78]

"gen" for the old generator. The inside headroom is excellent. By some clever styling it appears lower, although it isn't.

Along with the trend of many cars in recent months, size is going down in the standard rigs while it has started to creep up with some of the compacts. The 1962 Plymouth sports 116" of wheelbase. This is two inches shorter than last year's offering. Seven inches have been whacked off the overall length which now stands at 202". The interior length remains the same as in 1961. Four inches have been chewed off the overall width. Consequently, there is three inches *less* hiproom inside for 1962. The tread has been shaved an inch, both front and rear. Now, if you're one of those characters who always asks "Why?" and "What does this mean to me?", the answer may possibly be that with generally the same power plants as in 1961, the acceleration has been improved considerably and gas economy has been upped eight per cent. On this latter figure, we have only the word of Plymouth's engineers as our test didn't include economy runs.

To me, Plymouth has been a mystery car for several years—the mystery being why it hasn't sold better than it has. There are many little facts and figures about the Plymouth which are real shockers. For instance, Plymouth, despite its chintzy name, will out-accelerate any standard American-made car I have tested up to this writing. This does not include sports cars such as the fuel-injected Corvette or some special jobs built for stock car racing and dragstrip work. What it does include is all normal family-type cars in showroom condition that you can order and buy.

Believe it or not, the 1962 Plymouth, up to 100 mph with the available Golden Commando 361-cubic-inch V-8 engine, will match the famous Chrysler 300 wheel turn for wheel turn. It won't be very far behind, either, as it reaches top speed of better than 120 mph. If you want to get really special, we understand from our Chinese Underground that you can get the 300 engine in this rig if you do enough arm-twisting—but who needs it? This Golden Commando job turns out a 0-60 mph in an average of 7.7 seconds! It will run a standing quarter-mile in 14 seconds flat! I know—I did both. It will top 120 mph in its salesroom suit and, though I may be wrong, I feel quite sure this is enough performance for the average housewife.

The day we ran our test at the Chrysler Proving Grounds it was rainy and as miserable as being flat broke in Siberia. Despite this we made a number of roadability runs. The feel was excellent, although the famed torsion bars have been backed off a notch or two. The entire line of cars, suspension-wise, is not as sports-car crisp as in former years (though still better than anything the competition has to offer). One big feature being offered by Plymouth in '62 is a park pawl in the drive unit. Up until this model, if the parking brake was good—fine and peachy. But if it wasn't, it could be over-the-cliff for you in hilly sections of the country. All cars have new door latches and locks. The Chief Engineer assured me these are an improvement which, if true, is a step in the right direction as all American cars could use better, more reliable locks.

Somewhat like Ford, Plymouth now claims that a chassis lube is good for 32,000 miles. They now have only nine grease fittings for the entire car. This is about the number Rolls-Royce has for one wheel (but then again, the whole Plymouth sells for just about the price of a front-wheel assembly on a Rolls).

In fact, there are dozens of little ditty-doos "new" to Plymouth this year, though hardly really new. For example, self-adjusting brakes with bonded linings. The new Torque-Flite transmission is smaller and shorter, weighing 65 pounds less than the old blender. Also, they now feature an oil filter to comb out the rocks and dog hair. Another first (a feature that Philco and Zenith can argue about, for instance) is Plymouth's use of printed circuits in the instrument panel. This will get away from that Baltimore Oriole nest-look just above your feet which has proved very objectionable to traveling bugs. Actually, all the leads now come out of one center conduit in back of the firewall. This means one quick yank and everything is off. It is also an easier way to trace trouble

in various units.

The big deal when you get behind the wheel of the 1962 Plymouth (like the one I tested, with the big engine) is that it feels like a real twin to my recent 300F the moment you shoot your foot to the floor. In fact, I can't think of a thing a 300 can do in general use that this new Plymouth can't except cost more—though the 300 suspension *is* a little tighter. As already stated, it was raining like tears in an onion cannery when I made my test. The wipers, I found, swept a real large area and were as quiet as Lincoln's Birthday in Alabama. The steering wheel has a real nice feel and the minute you start off, although you know the car is smaller than last year's, that hairy, big-car feeling just exudes all over.

I've said and written for years that the biggest fault Plymouth has is its mousy name (I can see subscriptions being cancelled now in Plymouth, Mass.). To name the hottest of the Big Three "Plymouth" is, to my mind, a mistake. Borrowing a few thoughts from Madison Avenue (of all places) the name Plymouth conjures up an image of Pilgrims—and this job is about as much like a Pilgrim as Al Capone was.

I realize I have a lot of readers who couldn't care less about performance, being primarily interested in good, safe, reliable transportation with comfort. For them, I don't know of a car in its class that can top Plymouth. In the first place, it offers the best roadability in its class and this, tied up with good brakes, makes it just about the safest. From a pure lush comfort standpoint over rough roads I found it excellent and a very desirable piece of transportation. For the true motoring economist Plymouth still offers a 225-cubic-inch Six and a 318-cubic-inch V-8.

In summing up, the 1962 Plymouth is as hot as a Parisian wiretap. It *is* pretty near all-new and I would give the car a full sports award if they had just put a trip meter on that nice, functional speedometer and left the suspension alone—meaning the way it was. Regardless, you'd have to do a lot of soul-searching to figure out why you'd need a better car than this.

In summing up the summing-up, Plymouth is a dandy name for a rock but a helluva name for a bomb. •

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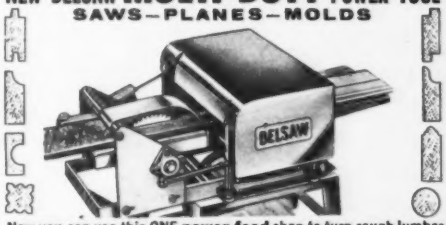

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Test Your Satellite IQ

[*Continued from page* 88]

became the first completely equipped radio relay station in orbit for military communications. *Echo I. Explorer VIII. Courier I-B. Transit II-A.*

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If you had less than four correct, you fizzled on the launching pad. Five correct —you failed to achieve orbit velocity. Six or seven correct—you burned up on a re-entry. If you scored eight or more correct —you're in orbit, man!

New V-6 Buick Special

[*Continued from page* 73]

Mantle on three straight pitches. You could cream just about any car made in America with this job with the exception of the Pontiac Grand Prix or the Plymouth Golden Commando.

But back to our V-6 test car. The V-6 engine, although it has a cast-iron block, is still considerably lighter than most other compact engines. Due to its short length, it has the strength and endurance advantages of a short, stubby crankshaft, with excellent breathing properties. It breathes a lot easier because its two-barrel carburetor works one barrel for each side, and the stretch from the center cylinder to the two end ones in each bank is no problem at all. In some V-8s where the stretch is comparatively long, attaining perfect carburetion in each cylinder is a major task because if the carburetion is correct for the two center cylinders, quite often the end ones are starved. Many engine builders run the centers too rich in order to get the ends up to normal, which is a compromise at best. Anyhow, as they say in Lapland, this 90-degree V-6 has a lot of good points.

My only objection to this car (and this goes for the V-8 Specials as well) is the same beef I had last year when we tested the first compact Buick Special. These cars, in tight corners and bends, lean and roll far too much for my liking. The ride is as comfortable as anyone could expect in a car of this size but that rolling is not a characteristic I like. If I were to buy a Buick Special (and believe me, if I were in the market for a compact this might very well be my Number One choice), I'd get some good heavyduty shocks installed before I'd rack up a hundred miles. A set of shocks that would tie this balloon to the ground could easily make the Special one of the most desirable pieces of transportation imaginable.

Another bad point with the Special, in my book, is the standard 13″ wheel size. This cuts deep into tire longevity as they get extra-hot on long turnpike runs. Thirteen-inch wheels, from a design standpoint, do make it a lot easier to give the car a low silhouette but some competing compacts have designed around this, while maintaining the larger wheels as standard. For this they should be complimented. However, at extra cost the Special will be available with 15″ wheels as optional equipment. This would certainly be my recommendation for anyone contemplating any long-sustained running. Around the suburbs the difference should be more or less negligible, though the 15″ jobs will last longer even if the car is never taken out of Times Square through the simple fact that the weight load is divided over a longer stretch of rubber.

In summing up, the Buick Special for 1962 offers a full line of models, from station wagons and convertibles to two-door coupes and four-door sedans and hardtops including the Skylark with its deluxe fabric-covered top and bucket seats. From any angle, this is an automobile worth owning. It is all the car 80 per cent of American buyers really need. You can order one of these jobs with enough performance to stay with the hottest cars on the road, or you can order the V-6 and enjoy its economy and endurance. In fact, this complete line-up of cars in a slightly small package is still big enough for a coast-to-coast trip for two or a weekend trip for four to the mountains or shore. In my book, if you're in the market for a compact you could do a great deal worse than a Buick Special—and I sincerely doubt that you could do any better. Look them over. •

The V-6 Engine

[*Continued from page* 75]

requires a heavier flywheel. Other parts that are interchangeable include the generator, starter, flywheel on engines equipped with an automatic transmission, valves, fuel pump and the flywheel housing for the synchromesh transmission.

While it is not possible to use the same tools for machining aluminum as cast-iron, there are numerous parts where the machining operations are the same. The V-6 camshaft, for instance, is similar to the V-8 cam, except it is shorter. But the spacing of the cams is the same. Consequently, some of the machining of the V-6 cams can be done on the V-8 machines.

By adopting a V-6 design, we are the first American automobile manufacturer to introduce an engine of this type. By making it a 90° V-6, it gave Buick the added distinction of being the first manufacturer in the world to offer such a power plant in a passenger car. The design and development of Buick's new V-6, with performance characteristics so closely paralleling a V-8, coupled with the well-known economies of a six, is nothing short of an engineering triumph. •

Show World The Truth

[*Continued from page* 81]

more than pay for itself in increased overseas telephone revenues.

Will the Russians find a way to jam international TV transmission? To do so they would have to spend millions of dollars on intricate radar tracking and computer equipment and they would have to place powerful jamming transmitter-receivers not far from our own. As one A.T.&T. engineer puts it, "First, they would have to be able to 'see' the satellite." According to space engineer Wernher von Braun, the communication repeater satellite will be "unjammable."

Just how large is the potential audience for the TV satellite? There are over 100,000,000 television sets in use in the world, almost 40,000,000 overseas, 6,000,000 within the Communist bloc. In the late months of 1960 the number of overseas sets

[*Continued on next page*]

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in use increased by 1,000,000 each month, doubling the pace of the first five months of the year. France has 15,000 of these sets in public places and the Eurovision network telecasts to 14 nations of Europe.

Thus the international television network will comprise hundreds of millions of viewers. People on the far side of the world will see thriving American cities, the rewards of life lived in freedom. They will see the American working man, his freedoms, his material blessings. One British authority believes the television satellite will decide whether Russian or English is to be the language of the future and sees it decisive in winning the cold war.

The television "battle" is on even now. East Germany transmits anti-American programs, dramatizing unemployment in the West, racism and lynchings to 600,000 West Germans within an 80-mile radius of the transmitter. But East German refugees say Western programs penetrate deep within East German territory, reach almost 2,000,000 people.

We know Russia spends ten times what we do in manpower and resources to make her appeal to the world. We *must* multiply *our* efforts. We must reach behind the Iron Curtain and into Russia itself. As an extension of our TV satellite program, it has been suggested that we could drop miniature television sets by parachute or from wind-carried balloons. These sets, I understand, might be built in quantity at a cost of $30 to $40 apiece, using off-the-shelf components with, say, five- to seven-inch screens. They could be transistorized, with printed circuitry, battery-powered and pre-set to a given channel. They could be packed to minimize damage in landing; a metal case added to serve as antenna. We could even enclose operational directions and our broadcasting schedules written in Russian. Russian viewers could pick up the satellite's broadcasts from powerful free-world antennas in Finland, Turkey, Sweden, Iran.

We could follow these sets with others that would tune in the satellite directly from "upstairs" into Russia; for in the words of RCA's M. G. Staton, "We must telecast directly from space into every living room in the world."

Yes, we must use television to bring the picture of freedom to the world. •

How To Buy A Deer Rifle

[*Continued from page 82*]

fluences your choice of a deer rifle.

There are three species of deer in the U. S., the whitetail of the brushy eastern and southwestern woods, the blacktail of the thick woods of the Pacific Coast and the mule deer of the mountainous West. Your choice of deer makes a difference in your rifle selection too.

Let's say you are going to hunt the whitetail of the East, by far the most important big game animal in the U. S. The whitetail loves thick brush where you can seldom see him more than 50 or 60 yards away. When you shoot at him, your bullets must usually plow through intervening brush. Therefore you should buy a rifle that will shoot heavy bullets having round or flat points that travel at moderate speeds.

However, chances are that your first bullet will deflect and result in a miss. Then you must be able to shoot a second and maybe even a third shot in rapid fire, hoping one will get through and score. This requires a short-barreled rifle easily swung around as the deer runs and bounds through the forest, as well as ammo with a good killing power that will also plow through twigs and leaves with a trajectory (the curve a bullet makes while traveling from rifle muzzle to target) flat enough for shooting point-blank up to 150 yards.

For brush shooting in areas not too heavily hunted the deer rifle that I find best meets these requirements is the featherweight Savage 99F (with the famous .300 cartridge) priced at $135. Hard on its heels are the three following rifles with suggested ammunition: Model 94 Winchester Carbine ($80), using 30/30 cartridge with 170-gr. soft-nosed bullet; Marlin 336 Carbine ($84.95), made for 30/30 or .35 Remington caliber; and Remington 760 slide-action ($135), chambered only for longer cartridges such as the 30/06.

For heavily hunted areas (something I avoid) the top gun—according to the experts in this sort of shooting—is the .358 Winchester priced at $135.50 with its 200-gr. bullet with a muzzle velocity of 2,530 feet per second. Speed, shape and weight let this bullet plow through the brush exceptionally well and drop deer in

their tracks.

What about sights for brush shooting? Best of all probably is the old fashioned peep sight on a stem. This is not a popular sight today. But through such a sight you can see a wide field and shoot as fast as you can squeeze them off. It is ideal for beginners. Have yours mounted close to the eye on the tang of a lever or pump action rifle or on the cocking piece of a bolt job.

Many hunters insist on using a scope in brush, for example. My advice is to hold it down to two-and-one-half- to three-power. This is an excellent brush scope because of its wide field, conspicuous reticule and its ability to pick up important detail in thick country.

For open country shooting anywhere, I favor a four-power scope, but have friends who use nothing less than six-power and have met fellows who will argue your head off in favor of eight-power. The beginner will do well to limit himself to four-power.

Scopes such as the excellent ones put out by Weaver, Lyman, Bushnell, Bausch and Lomb and Leupold run around $40 for a four-power, $50 for six-power and $60 for eight-power, give or take a few bucks.

The whitetail of the Southwest and the blacktail of the Pacific Coast are also shot under somewhat similar conditions as the whitetails of the East. Therefore the same guns and ammo are your best selection. However, when it comes to the mule deer of the open ranges and the high mountain country an entirely different rifle is called for. The mulie averages considerably larger than the whitetail and is usually shot across canyons and basins and over level, almost brushless ground at from 200 to 500 yards.

For such shooting top guns are those that shoot light, rapidly-expanding bullets at lightning speeds with fairly flat trajectories.

There are quite a few rifles in the standard makes that meet these open country requirements. My choice is the old favorite, the .30/06 using the classic 150-gr. bullet. Second choice would be the famous .270 using the 130-gr. bullet. Third choice, the 7mm. rifle using 130-gr. bullet and fourth choice, the .250/3000 with the 87-gr. bullet. Prices are comparable to those quoted for brush shooting. •

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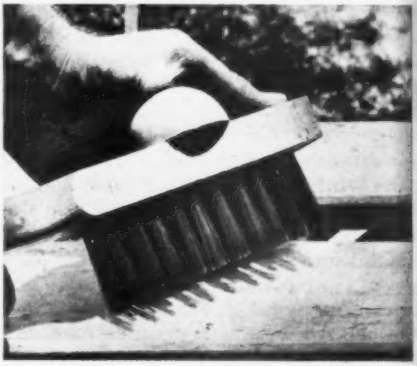

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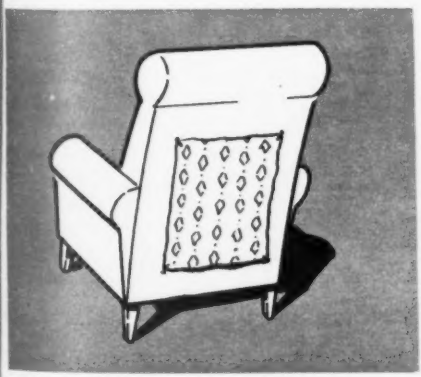

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What I overheard one morning shook me right out of a rut!

"Company's getting ready to cut back . . . bound to be layoffs," I heard them say. "Just another crazy rumor," I told myself.

Just the same, I took quick stock of myself that night. Came up with four good reasons why the company would keep me on:

Three years' experience
Getting along with foreman
Turning out acceptable work
Prompt and dependable

And four just-as-good reasons why they might let me go:

Making no real headway
Others better qualified
Still rated "semi-skilled"
Needs special training

I wasn't in trouble. But I sure wasn't "in solid" like I should be. That's when I made up my mind to enroll for training with I.C.S.

I picked I.C.S. because it's the oldest and largest with over 250 courses. The training is quick and thorough. It's recognized by my company and accredited by the National Home Study Council. You study in your spare time and get personalized, practical instruction—know-how you can apply next day on the job.

That was a year ago. There have been two layoffs since then. While some of the others were just hanging on or being released, I was moving up. My I.C.S. training started something. Not only did it get me promoted (with a fat pay hike), but it put me in line for real advancement.

Don't wait for a "crazy rumor" to set you straight. Take out your "job insurance" right now. Mail the coupon and get full, free details on how I.C.S. has helped thousands, how it can help you. No obligation—and you get three valuable booklets *free!* (1) How to Succeed; (2) Catalog of opportunities in the field of your choice; (3) Sample lesson.

For Real Job Security—Get an I. C. S. Diploma! **I. C. S., Scranton 15, Penna.** Accredited Member, National Home Study Council

INTERNATIONAL CORRESPONDENCE SCHOOLS ICS

BOX 73083J, SCRANTON 15, PENNA. (In Hawaii, reply P.O. Box 418, Honolulu) (Partial list of courses)

Without cost or obligation, send me "HOW to SUCCEED" and the opportunity booklet about the field BEFORE which I have marked X (plus sample lesson):

ARCHITECTURE and BUILDING CONSTRUCTION
- ☐ Air Conditioning
- ☐ Architecture
- ☐ Arch. Drawing and Designing
- ☐ Building Contractor
- ☐ Building Estimator
- ☐ Carpenter Builder
- ☐ Carpentry and Millwork
- ☐ Heating
- ☐ Painting Contractor
- ☐ Plumbing
- ☐ Reading Arch. Blueprints

ART
- ☐ Commercial Art
- ☐ Magazine Illus.
- ☐ Sign Painting and Design'g
- ☐ Sketching and Painting

AUTOMOTIVE
- ☐ Automobile
- ☐ Auto Body Rebuilding and Refinishing
- ☐ Auto Engine Tuneup
- ☐ Auto Electrical Technician
- ☐ Diesel Engines

AVIATION
- ☐ Aero-Engineering Technology
- ☐ Aviation Engine Mech.
- ☐ Reading Aircraft Blueprints

BUSINESS
- ☐ Accounting
- ☐ Advertising
- ☐ Bookkeeping and Cost Accounting
- ☐ Business Administration
- ☐ Business Management
- ☐ Clerk Typist
- ☐ Creative Salesmanship
- ☐ Managing a Small Business
- ☐ Professional Secretary
- ☐ Public Accounting
- ☐ Purchasing Agent
- ☐ Real Estate Salesmanship
- ☐ Salesmanship
- ☐ Salesmanship and Management
- ☐ Traffic Management

CHEMICAL
- ☐ Analytical Chemistry
- ☐ Chemical Engineering
- ☐ Chem. Lab. Technician
- ☐ General Chemistry
- ☐ Oil Field Technology
- ☐ Pulp and Paper Making

CIVIL ENGINEERING
- ☐ Civil Engineering
- ☐ Construction Engineering
- ☐ Highway Engineering
- ☐ Professional Engineer (Civil)
- ☐ Reading Struc. Blueprints
- ☐ Sanitary Engineer
- ☐ Sewage Plant Operator
- ☐ Structural Engineering
- ☐ Surveying and Mapping
- ☐ Water Works Operator

DRAFTING
- ☐ Aircraft Drafting
- ☐ Architectural Drafting
- ☐ Drafting & Machine Design
- ☐ Electrical Drafting
- ☐ Electrical Engineer Drafting
- ☐ Industrial Piping Drafting
- ☐ Mechanical Drafting
- ☐ Sheet Metal Drafting

ELECTRICAL
- ☐ Electrical Appliance Servicing
- ☐ Electrical Engineering
- ☐ Electric Motor Repairman
- ☐ Elec. Engr. Technician
- ☐ Elec. Light and Power
- ☐ Practical Electrician
- ☐ Practical Lineman
- ☐ Professional Engineer

HIGH SCHOOL
- ☐ Good English
- ☐ High School Diploma
- ☐ High School General
- ☐ H. S. College Prep. (Eng'r'g & Science)
- ☐ High School Math
- ☐ High School Science
- ☐ Short Story Writing

LEADERSHIP
- ☐ Industrial Foremanship
- ☐ Industrial Supervision
- ☐ Personnel-Labor Relations
- ☐ Supervision

MECHANICAL and SHOP
- ☐ Diesel Engines
- ☐ Gas-Elec. Welding
- ☐ Heating and Air Conditioning
- ☐ Industrial Engineering
- ☐ Industrial Instrumentation
- ☐ Industrial Safety
- ☐ Machine Shop Practice
- ☐ Mechanical Engineering
- ☐ Plumbing and Heating
- ☐ Professional Engineer
- ☐ Quality Control
- ☐ Reading Shop Blueprints
- ☐ Refrigeration and Air Conditioning
- ☐ Tool Design ☐ Tool Making

RADIO, TELEVISION
- ☐ General Electronics Tech.
- ☐ Industrial Electronics
- ☐ Practical Radio-TV Eng'r'g
- ☐ Radio-TV Servicing
- ☐ TV Technician

RAILROAD
- ☐ General Railroad

STEAM and DIESEL POWER
- ☐ Combustion Engineering
- ☐ Power Plant Engineer
- ☐ Stationary Diesel Engr.
- ☐ Stationary Steam Engineer

TEXTILE
- ☐ General

Name_____ Age_____ Home Address_____

City_____ Zone_____ State_____ Working Hours_____ A.M. to P.M._____

Occupation_____

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